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# 1977 53rd annual SUMMARY OF ILLINOIS FARM BUSINESS RECORDS

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COMMERCIAL FARMS: Production / Costs / Income / Investments

UNIVERSITY OF ILLINOIS AT URBANA-CHAMPAIGN / COLLEGE OF AGRICULTURE / COOPERATIVE EXTENSION SERVICE

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## Source of Data

This report is based on data obtained from farm business records on 7,840 Illinois farms. It is the 53rd in a series of annual summaries of such records obtained from farmers cooperating with the University of Illinois Cooperative Extension Service, the Department of Agricultural Economics, and the Illinois Farm Business Farm Management Association.

At present about 1 out of every 5 commercial farms over 500 acres in size in Illinois is enrolled in this service. The service has grown steadily, and in 1978 there are 10 associations in 102 counties served by 64 full-time fieldmen. Participation in this farm business analysis program is voluntary, and cooperating farmers pay a fee for the educational services received.

The development since 1940 is shown by the following figures:

Year	Associa- tions	Counties partici- pating	Fieldmen employed	Farmers enrolled
1940.....	3	23	3	680
1950.....	8	59	15	2,760
1960.....	10	100	33	5,494
1970.....	10	102	42	6,553
1977.....	10	102	64	7,840

Estimates for 1977 indicate that 86 percent of the 7,840 farms in this report are above 240 acres in size. This 86 percent falls largely within the size of business that includes farms selling \$40,000 or more of farm products a year.

The segment of Illinois agriculture that includes farms with more than 180 acres per farm is often referred to as "commercial farming." In 1974 there were 54,984 farms in Illinois with more than 180 acres. The figures that follow, taken from the 1974 Census of

Agriculture, show that these farms represented 63 percent of the 87,002 farms over 50 acres in size and produced more than 95 percent of the agricultural products sold from Illinois farms.

Acres per farm	Percent of total farms over 50 acres	Percent of census farms enrolled in FBFM	Number of farms enrolled in FBFM
180-499.....	46.1	9.4	3,768
500-999.....	14.5	21.4	2,696
1,000-1,999.....	2.4	26.1	543
2,000+.....	.2	17.9	40

Although the 1977 record-keeping farms in this report are largely within the two smaller size groups, the figures above show they are not proportionately distributed among the groups. There were 2,304 farms identified with more than 1,000 acres in 1974. About one-fourth (25.3 percent) of these farms were enrolled in the Illinois Farm Business Farm Management Association. Of the 12,596 farms in the group having 500-999 acres, 21.4 percent participated in the farm record program. Only about 5 percent of the farms enrolled had less than 160 acres. Average size of all farms enrolled in 1977 was 512 acres, compared with an average of 242 acres for all Illinois farms.

The data presented in this report are group averages identified by size of business, type of farm, and quality of soil found on the farm. Where segments of Illinois agriculture are identified by these criteria, the data from record-keeping farms may be used with reasonable confidence, even though the record-keeping farms as a group do not represent a cross section of all commercial farms in the state.

## Uses for This Report

The management of a modern commercial farm involves decision-making in the application of technology, the choice of a proper combination of crop and livestock enterprises, and effective business administration of the farming operations. A basic farm business analysis involves a careful study of past performance to detect problem areas and strengths in the farming operation. Also involved is the process of planning and developing future operations to attain the full potential of the land, labor, and capital resources available and to improve economic efficiency of the farm business.

The farm business summaries contained in this report are used by individual farmers to analyze their business operations and as a basis on which to develop plans for future farming operations. This report summarizes the information so that specialists working in agricultural extension, research, teaching, and agribusiness activities may use the data to assist them in the effective performance of their duties. The definition

of terms and accounting measures on the following page will aid in using the data.

In the first part of the report (Tables 2 to 6) recent changes in farm income on Illinois farms are summarized. Economic forces and factors that contribute to these changing trends are identified. Some data used in the text are drawn from previous issues of this report.

In the second section, detailed livestock enterprise data are presented. These data (Tables 7 to 16) provide comprehensive and detailed information for use as resource data by all who are interested in livestock production. Because a large proportion of the feed grains and roughages produced on Illinois farms is marketed through livestock, the margins of income from livestock enterprises are important in interpreting the economic results of farming operations.

The third section (Tables 17 to 21a) reports costs, returns, financial summaries, investments, land use, and crop yields for different sizes and types of farms in northern and southern Illinois.

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## DEFINITION OF TERMS AND ACCOUNTING METHODS

### Soil-productivity rating

This is an average index representing the inherent productivity of all tillable land on the farm. Individual soil types on each farm are assigned an index ranging downward from 100. All ratings were revised in 1971 to reflect a basic level of management as outlined in Illinois Extension Circular 1156, Soil Productivity in Illinois, and new land values were assigned. The change in land values represents an accounting adjustment to bring land values to current market levels.

### Hay equivalents, tons

Total of  $1.0 \times$  pounds of hay,  $.45 \times$  pounds of hay silage,  $.33 \times$  pounds of corn silage, and  $24 \times$  pasture-days per feed unit, times total feed units per cow, and divided by 2,000.

### Type of farm

**Sampling technique.** Data from all records certified for analysis by fieldmen were aggregated by size (acres), type of organization, value of feed fed, and soil-productivity rating. Electronic data processing was used to summarize the data.

**Grain farms.** Farms where the value of feed fed was *less* than one-half of the feed and grain returns and where value of feed fed to dairy or poultry was not more than one-sixth of the feed and grain returns. Since 1973 the sample of northern Illinois grain farms in Table 17 has essentially excluded farms with livestock.

**Hog or beef farms.** Farms where the value of feed fed was *more* than one-half of the feed and grain returns and either hog or beef-cattle enterprises received more than one-half of the value of feed fed.

**Dairy or poultry farms.** Farms where the value of feed fed was *more* than one-half of feed and grain returns and either dairy or poultry enterprises received *more* than one-third of the value of feed fed.

### Cost items

**Value of feed fed.** Includes on-the-farm grains with the following average prices per bushel: corn, \$2.07; oats, \$1.32; barley, \$1.66; wheat, \$2.17. Commercial feeds were priced at actual cost, hay and silage at farm values, and pasture at 25 cents per animal unit pasture-day. A pasture-day represents an intake of approximately 20 to 25 pounds of dry matter. It has been defined as 16 pounds of total digestible nutrients (TDN) from pasture.

**Cash operating expenses.** Includes annual cash outlays for nondepreciable items of fertilizer, machinery repairs, machine hire, gas and oil, farm share of electricity, telephone, and auto, hired labor, seed and crop expenses, taxes, building repairs, livestock ex-

pense, insurance, and miscellaneous expenses. It does not include purchased feed and livestock because these have been deducted from gross receipts in computing the value of farm production. Interest paid is not included because an interest charge is made on the total farm investment.

**Machinery and equipment.** Includes depreciation, repairs, machine hire, gas and oil, and farm share of electricity, telephone, and auto.

**Labor.** Includes hired labor plus family and operator's labor charged in 1977 at \$800 a month.

**Interest charge on capital.** Interest charged at 8 percent on the January 1 inventory of remaining capital investment in grain, livestock, machinery and auto, buildings, and soil fertility, plus 4-percent interest on bare land priced at current land values.

**Total nonfeed costs.** Includes cash operating expenses, depreciation, and charges for unpaid labor and interest. Purchased feeds and livestock are omitted.

**Value of land (current basis).** A basic value on bare land is established for each farm according to the soil-productivity rating. This basic value is adjusted each year according to the February index of land prices in Illinois as reported by the USDA.

### Return items

**Feed and grain return.** The sum of grain and feed sales, value of all feed fed (except milk), and change in value of feed and grain inventories less the value of feed purchased.

**Value of farm production.** Total cash sales of products and services, less purchased feed and livestock, plus change in inventory values of grain and livestock, plus value of farm products consumed.

**Farm and family earnings.** Value of farm production less cash operating expenses and depreciation. This figure includes the return to the farm and family for unpaid labor, interest on invested capital, and returns to management.

**Labor and management earnings.** Farm and family earnings less the value of family labor and interest charge on capital invested. This is the residual return to operator's labor and management efforts.

**Capital and management earnings.** Farm and family earnings less a charge for all unpaid labor.

**Management return.** The residual surplus left after a charge for unpaid labor and an interest charge on capital are deducted from farm and family earnings.

**Rate earned on investment.** Capital and management earnings (interest on all capital plus management returns) per \$100 total farm investment.



## RECENT CHANGES IN INCOME ON ILLINOIS FARMS

### Farm business trends in 1977

Illinois agriculture is based largely on crop production, especially of corn and soybeans. In 1977 Illinois ranked first in the nation in soybean production and second in corn production. The total value of corn and soybeans produced on Illinois farms was 19 percent of the total U.S. production for these crops. In 1976 the total value was 63 percent of the total cash receipts in Illinois from all crops and livestock and 91 percent of the cash receipts from all crops sold by Illinois farmers.

**Crops.** Year-to-year variations in net farm income are related to crop yields, grain prices, and acres in high cash value crops. In 1977 the 19-bushel-per-acre lower corn yields on record-keeping farms across central Illinois more than offset the 10- to 12-bushel-per-acre higher yields in northern and southern Illinois. Soybean yields hit a record high throughout the state. Prices received for grain crops trended downward during the year until harvest time, when near-record production was confirmed. Most farmers sold their soybeans before the fall price decline, but many sold corn at prices averaging 40 to 50 cents per bushel below the 1976 average (Table 1). Corn acreage was down 5 percent from 1976, soybean acreage up 17 percent, and wheat acreage down 14 percent. The Illinois all-crop production index for 1977 at 185 (1957-1959 = 100) was up 5 percent from 1976.

Corn planting began in mid-April, progressed faster than usual, and was virtually complete on June 1. Although hot, dry weather during tasseling reduced corn yields in some areas, grain quality was good and moisture content at harvest was lower than in most recent years. Through October, harvesting progressed ahead of normal, but frequent November rains delayed harvesting the last 15 to 20 percent of the crop. Most of the soybean crop was also planted by June 1. Record-breaking rainfall during August, especially in central Illinois, benefited soybeans, but heavy rains in the fall slowed harvesting, did some minor damage, and caused some reduction in the quality of the crop.

Corn yields for the state in 1977, as recorded by the Illinois Crop Reporting Service, were 105 bushels per acre, compared with 107 bushels in 1976 and 116 bushels in 1975. Soybean yields were a record high of 37 bushels per acre, compared with 33 bushels in 1976 and 36 bushels in 1975. The average wheat yield of 39 bushels per acre was the same as in 1976 and 1975. Crop yields on these record-keeping farms averaged about 5 percent higher than the average for all Illinois farms as reported by the Illinois Crop Reporting Service.

**Livestock.** A second major determinant of change in farm income is the price farmers receive for livestock and livestock products sold. Market prices received by farm record keepers for hogs were 8 percent

lower in 1977 than in 1976 but 5 percent higher for fed cattle. Milk prices averaged about the same (Table 1). Prices paid for all weights of feeder cattle purchased continued to increase and averaged 5 percent higher than in 1976. Cattle and hog prices continued to increase during the year and averaged 12 percent higher at the end of the year than in January.

### Labor and management earnings

The 1973-1977 average operator's share of labor and management earnings from all northern Illinois record-keeping farms north of a line from Kankakee to Moline was \$15,801 per farm. Operators on 1,772 grain and hog farms in central Illinois had 5-year average earnings of \$27,476 (Table 2). Central Illinois is the area between the Kankakee-Moline line and a line from Mattoon to Alton. The smaller sizes of farms and variable soil quality in northern Illinois contribute to lower earnings from crops. These farms, with typically lower crop yields, averaged 417 tillable acres per farm, compared with 497 tillable acres on central Illinois farms. There was considerable variation in these earnings, depending on location and type of farm. For this same period southern Illinois operators averaged \$20,822. In 1977 these earnings for all areas of Illinois averaged 80 percent below the 1976 earnings. The greatest drop, occurring on central Illinois farms where lower corn yields and prices along with high fixed costs in land, resulted in negative labor and management earnings for many farms.

These earnings (salary) for the operator of the farm — whether tenant, part-owner, or owner-operator — were for the labor and management performed by the operator. They included the operator's gross sales and net change in inventory reduced by all expenses

Table 1. — Average Prices Received and Paid by Farm Record Keepers

	1977		1976	
	Northern Illinois	Southern Illinois	Northern Illinois	Southern Illinois
<b>Grain prices per bushel</b>				
Purchased, corn.....	\$2.06	\$1.86	\$2.33	\$2.37
Sold, corn.....	2.10	2.06	2.55	2.48
soybeans.....	7.05	6.58	5.55	5.48
wheat.....	1.98	2.08	3.05	3.09
<b>Livestock prices per cwt.</b>				
Hogs, all weights.....	\$39.10		\$42.36	
Fed cattle, all weights..	38.86		37.44	
Feeder cattle, all weights, prices paid...	\$39.47		\$37.51	
Dairy cattle, all weights	29.46		29.88	
Sheep, all weights.....	44.87		35.44	
Milk.....	9.24		9.27	
Eggs, dozen.....	.45		.56	



for items purchased, including interest paid; a charge for the unpaid family labor used; an 8-percent interest charge on equity in assets other than land; and a 4.8-percent charge on equity in land. These record-keeping farms are larger than the average size of all farms in the area. The earnings do not include the rental value of dwellings on rented farms or income from nonfarm sources.

### Income changes on Illinois farms

Comparative costs and returns between years and among major types of farming in northern and southern Illinois are reported in Tables 4 to 6. The separation of farms into northern and southern Illinois is based on soil-type regions, and divides the state approximately on an east-west line from Mattoon to Alton. The sample of farms ranged in size between 340 and 499 acres for grain, hog, and beef farms, and averaged 417 acres. The dairy farms ranged between 260 and 339 acres, and averaged 298 acres. Labor available on farms of this size averaged 15 months on grain farms, 20 months on hog and beef farms, and 22 months on dairy farms. The data in these tables are presented as if the farms were all owner-operated. Landlord and tenant shares of the business were combined where farms were leased. Between 55 and 75 percent of the land in Illinois, depending on the location, is tenant operated on primarily crop-share and livestock-share leases.

Size of farm, type of farm, quality of soil, and managerial inputs were held reasonably constant over time by the sampling procedure used in selecting farms within each type of farm. Variations among 1976, 1977, and the 5-year average are due to changes in farm prices and costs, weather, and internal farming adjustments made within each system of farming. The data in these tables are particularly helpful for evaluating changes in farm costs and returns within a particular size and type of farm, and in making comparisons between types of farming. The data do not reflect overall farming adjustments resulting from farm enlargement or major changes in resource use.

The farm-and-family-earnings measure includes returns to the farm family for all unpaid labor, interest on invested capital, and managerial inputs used in farming. Changes in value of farm inventories and value of farm products consumed are included as income. Farm and family earnings are calculated by accounting methods that are generally comparable to the accrual method of calculating taxable farm income for the federal income tax. Important differences in accrual income tax accounting methods are the provision for capital gains on livestock sales and the inclusion of interest paid as a farm expense.

The farm-and-family-earnings figure is the amount available from the farm business to pay for living costs, income and social security taxes, interest, debt repayment, and new investments, and to increase savings. Purchases of new capital investments for the farm

**Table 2. — Operator's Share of Labor and Management Earnings by Size and Type of Farm (1973-1977 Average)**

	Number of acres per farm			
	Under 340	340-649	650+	All
<b>Northern Illinois</b>				
Acres of tillable land . .	223	426	831	417
Labor and management earnings by type of farm				
Grain.....	\$11,401	\$20,800	\$35,850	\$22,042
Hog.....	15,510	21,740	...	18,253
Beef <sup>a</sup> .....	2,151	2,999	8,593	4,297
Dairy.....	7,626	10,596	...	8,476
All.....	9,602	16,428	29,220	15,801
<b>Central Illinois</b>				
Acres of tillable land . .	241	444	793	497
Labor and management earnings by type of farm				
Grain <sup>b</sup> .....	\$16,458	\$26,684	\$49,140	\$30,763
Grain <sup>c</sup> .....	12,245	20,530	36,086	23,831
Hog.....	19,872	26,894	30,185	25,142
All.....	16,402	24,776	42,712	27,476
<b>Southern Illinois</b>				
Acres of tillable land . .	215	433	854	486
Labor and management earnings by type of farm				
Grain.....	\$12,051	\$17,392	\$32,685	\$21,314
Hog.....	15,591	26,289	...	23,629
Dairy.....	11,768	18,147	...	14,381
All.....	12,889	20,025	33,064	20,822

<sup>a</sup> Includes central Illinois.

<sup>b</sup> Highly productive soils with 86-100 soil productivity ratings.

<sup>c</sup> Heavy till and transition soils with 56-85 soil productivity ratings.

**Table 3. — Average Cost per Tillable Acre To Grow Corn and Soybeans on Central Illinois Farms With No Livestock**

	Corn		Soybeans	
	1977	1976	1977	1976
Number of farms.....	436	447	436	447
Acres grown per farm...	305	327	229	201
Yield per acre, bu.....	121	143	46	42
<b>Nonland costs</b>				
Variable costs				
Soil fertility.....	\$ 40	\$ 46	\$ 12	\$ 12
Seed, crop, and drying	32	30	21	20
Repairs, fuel, and hire	19	19	17	16
Total, variable costs..	\$ 91	\$ 95	\$ 50	\$ 48
Other nonland costs				
Labor.....	\$ 25	\$ 24	\$ 24	\$ 23
Buildings and storage	8	7	4	4
Machinery depreciation.....	26	24	22	20
Nonland interest.....	31	29	29	27
Overhead.....	9	8	9	8
Total, other costs....	\$ 99	\$ 92	\$ 88	\$ 82
Total, nonland costs..	\$190	\$187	\$138	\$130
<b>Land costs</b>				
Taxes.....	\$ 16	\$ 14	\$ 16	\$ 14
Adjusted net rent....	94	87	94	87
Total land cost.....	\$110	\$101	\$110	\$101
Total, all cost.....	\$300	\$288	\$248	\$231
Nonland cost per bu....	\$ 1.57	\$ 1.31	\$ 3.00	\$ 3.10
Total, all cost per bu....	\$ 2.48	\$ 2.01	\$ 5.39	\$ 5.50

business have been included with total cash expenditures. Although the cash balance figure reflects the cash position of the farm business, it is influenced by purchases and sales of feed and livestock and by changes in liabilities and borrowed funds.

The investment per farm is established as of January 1 of each year. Physical quantities of grain and livestock are valued at farm market prices. Machinery, buildings, and soil fertility are valued at remaining capital cost (original cost less depreciation charged to date). Land is priced at current values. A basic value is established for each farm, based on a soil-productivity rating, and is adjusted to a current value each year by using the February index of land prices in Illinois. All soil-productivity ratings were revised in 1971 to reflect a basic level of management as outlined in Illinois Extension Circular 1156, Soil Productivity in Illinois, and new land values were assigned. The change in land values represents an accounting adjustment to bring land values to current market levels. The land value index for 1977, using a base earning value of

1970 = 100, was 331. This was 36 percent higher than the index used in 1976, and 69 percent higher than in 1975.

### Northern Illinois farms

**Grain farms.** Farm and family earnings on northern Illinois grain farms (340 to 499 acres) in 1977 averaged \$41,125 with operator and landlord shares combined (Table 4). These earnings are 37 percent below 1976. The negative \$15,721 return for management after deducting charges at market rates for all capital and unpaid labor used was the lowest on record. Land values increased 36 percent over 1976. Lower prices for corn sold and lower corn yields across central Illinois, combined with lower prices for crops inventoried at the end of the year, caused the drop in earnings. Although cash operating expenses were 51 percent higher than in 1973, there was no increase in 1977 over 1976. Capital purchases for machinery and buildings dropped 20 percent, from about \$21,000 in

**Table 4. — Average Selected Total Farm Items on 340- to 499-Acre Northern Illinois Grain, Hog, and Beef Farms**

	Grain farms			Hog farms			Beef farms		
	1977	1976	1973-77 average	1977	1976	1973-77 average	1977	1976	1973-77 average
Number of farms.....	667	713	687	144	138	135	58	62	56
Total acres.....	420	420	420	403	410	408	415	409	410
Soil-productivity rating <sup>a</sup> .....	87	86	86	81	81	81	80	80	81
Total cash sales.....	\$110,593	\$117,749	\$104,233	\$165,719	\$176,448	\$158,615	\$192,645	\$188,059	\$192,657
Less purchased feed and livestock.....	6,955	6,756	7,202	47,875	52,662	47,974	107,503	107,108	107,314
Net cash sales.....	103,638	110,993	97,031	117,844	123,786	110,641	85,142	80,951	85,343
Inventory change.....	-9,289	6,495	10,164	-4,950	-5,395	10,345	919	5,751	9,001
Farm products consumed.....	154	173	176	398	383	426	609	643	652
Value of farm production.....	94,503	117,661	107,371	113,292	118,774	121,412	86,670	87,345	94,996
Cash operating expenses.....	40,812	40,993	36,327	52,019	51,980	46,178	45,532	47,330	42,863
Annual depreciation.....	12,566	11,448	10,238	18,321	16,631	14,937	14,923	14,667	13,925
Farm and family earnings.....	41,125	65,220	60,806	42,952	50,163	60,297	26,215	25,348	38,208
Unpaid labor charge.....	9,969	9,595	8,653	11,244	10,948	9,806	11,021	10,375	9,412
Returns to capital and management.....	31,156	55,625	52,153	31,708	39,215	50,491	15,194	14,973	28,796
Interest charge on capital.....	46,877	42,845	35,343	46,743	43,583	35,855	47,830	45,157	39,665
Management returns.....	-15,721	12,780	16,810	-15,035	-4,368	14,636	-32,636	-30,184	-10,869
Total cash income <sup>b</sup> .....	111,012	118,460	522,771	166,098	177,737	159,224	192,885	188,424	192,988
Total cash expenditures <sup>b</sup> .....	65,290	68,885	60,656	127,972	142,154	121,129	168,425	175,534	170,605
Cash balance.....	45,722	49,575	462,115	38,126	35,583	38,095	24,460	12,890	22,383
<b>FARM INVESTMENT</b>									
Livestock inventory.....	\$ 7,628	\$ 8,895	\$ 8,627	\$ 51,514	\$ 62,290	\$ 51,572	\$ 86,368	\$ 88,418	\$ 91,848
Grain inventory.....	86,969	81,193	67,957	67,825	61,624	52,796	57,745	58,034	51,014
Remaining capital cost in									
Machinery and auto.....	36,997	30,892	26,260	41,735	33,690	30,154	34,839	34,062	29,671
Buildings and fence.....	21,979	19,597	19,179	56,582	50,021	44,139	50,383	45,571	47,690
Soil fertility.....	5	11	7	7	0	5	251	0	102
Value of land (current basis)....	864,770	631,963	549,458	733,239	539,465	465,689	736,583	541,401	478,076
Total farm investment.....	1,018,348	772,551	671,488	950,902	747,090	644,355	966,169	767,486	698,401
Rate earned on investment, %..	3.06	7.20	7.77	3.33	5.25	7.84	1.57	1.95	4.12

<sup>a</sup> Adjusted in 1971. See Illinois Extension Circular 1156, Soil Productivity in Illinois.

<sup>b</sup> Includes sales or purchases of capital items.



1976 to \$17,000 in 1977. Reductions in available cash helped to slow down the rate of spending for operating and capital items.

Corn and soybeans are the major crops produced on these farms. A comparison of the 1977 cost per acre to grow corn and soybeans in central Illinois with the 1976 cost is shown in Table 3. In 1977 these costs averaged \$300 per acre for corn and \$248 for soybeans. From 1976 to 1977 the total cost increased 4 percent for corn and 7 percent for soybeans. Reductions in fertilizer cost for corn offset some of the increase in other costs. Nonland costs are the most relevant for maintaining production in the short run, especially where landowners have land that is debt free. The lower yields for corn in 1977 and the higher yields for soybeans influenced the cost per bushel. Had yields for these farms in 1977 been at the 1973-1976 average of 129 bushels for corn and 41 bushels for soybeans, the total of all costs per bushel would have been \$2.33 for corn and \$6.05 for soybeans.

The soil fertility cost for soybeans was allocated on the basis of P, K, and lime removals, with the residual cost allocated to corn. The seed, crop, and drying expenses included seed, herbicides, insecticides, and drying fuel purchased, plus the cost of commercial drying and storage and the estimated value of home-raised seed used.

Total unpaid labor charge was based on the labor available. Adjusted net rent is the 1967-1969 average return to land and management for the landlord, adjusted by the February 1, 1977, USDA Farm Real Estate Index for Illinois. The nonland interest rate was 8 percent of the inventory value of crops on hand at the beginning of the year and the undepreciated value of machinery and buildings.

**Hog farms.** Farm and family earnings on northern Illinois hog farms (340 to 499 acres) in 1977 averaged \$42,952 with operator and landlord shares combined (Table 4). This 14-percent drop in earnings from 1976 was caused by lower average selling prices for corn and hogs plus large amounts of depreciation resulting from increased investments in buildings and machinery during the past 3 years. Improved crop yields in hog-raising areas over 1976 and higher year-end inventory prices for hogs offset some of the effect of low grain prices in the last half of 1977.

Prospects of lower grain prices may improve returns (above feed) from hogs, but the reduced returns from crops were not able to sustain the annual increases in cash operating and capital expenditures. The negative \$15,035 return for management after deducting charges at market rates for all capital and unpaid labor used was the lowest on record. With six continuous years of substantial investments in new equipment and facilities, costs were increasing when prices received for corn and hogs were decreasing. The annual variations in returns indicate the nature of the farming business; resources are committed for production with

the expectation of a fair rate of return over time. The 1973-1977 average rate of 7.84 percent earned on investment for hog farms is the highest of the four types of farms represented for northern Illinois.

**Beef farms.** Farm and family earnings on northern Illinois beef farms (340 to 499 acres) in 1977 averaged \$26,215 with operator and landlord shares combined (Table 4). This was 3 percent above 1976. Earnings on this type of farm continue to vary considerably from year to year. The years 1973 and 1975 are two of the highest income years on record, but 1974, 1976, and 1977 are among the lowest. Lower corn prices offset most of the effect of improved crop yields and cattle prices on these farms.

Cash operating expenses in 1977 were 4 percent lower than in 1976. Capital purchases continued to decline below the level necessary to maintain production over the long run. Returns for the past 5 years have been influenced by the high price of feed grains and the liquidation phase of the beef cycle. The 5-year

Table 5. — Average Selected Total Farm Items on 260- to 339-Acre Northern Illinois Dairy Farms

	1977	1976	1973-77 average
Number of farms.....	50	50	51
Total acres.....	295	294	296
Soil-productivity rating <sup>a</sup> .....	71	72	72
Total cash sales.....	\$ 93,830	\$ 95,432	\$ 81,872
Less purchased feed and live- stock.....	15,987	16,703	15,718
Net cash sales.....	77,843	78,729	66,154
Inventory change.....	6,496	498	6,278
Farm products consumed.....	516	692	602
Value of farm production.....	84,855	79,919	73,034
Cash operating expenses.....	37,259	34,474	31,183
Annual depreciation.....	12,151	10,925	10,101
<b>Farm and family earnings....</b>	<b>35,445</b>	<b>34,520</b>	<b>31,750</b>
Unpaid labor charge.....	13,549	13,021	11,640
Returns to capital and manage- ment.....	21,896	21,499	20,110
Interest charge on capital.....	29,201	27,652	23,335
<b>Management returns.....</b>	<b>-7,305</b>	<b>-6,153</b>	<b>-3,225</b>
Total cash income <sup>b</sup> .....	93,926	95,730	82,121
Total cash expenditures <sup>b</sup> .....	70,232	67,204	63,487
Cash balance.....	23,694	28,526	18,634
<b>FARM INVESTMENT</b>			
Livestock inventory.....	\$ 35,028	\$ 33,616	\$ 31,320
Grain inventory.....	29,748	31,453	25,040
Remaining capital cost in			
Machinery and auto.....	29,591	22,677	22,206
Buildings and fence.....	43,237	42,278	39,653
Soil fertility.....	0	0	0
Value of land (current basis)...	454,822	345,004	299,498
Total farm investment.....	592,426	475,028	417,717
Rate earned on investment, %..	3.70	4.53	4.81

<sup>a</sup> Adjusted in 1971. See Illinois Extension Circular 1156, Soil Productivity in Illinois.

<sup>b</sup> Includes sales or purchases of capital items.



Table 6. — Average Selected Total Farm Items on 340- to 499-Acre Southern Illinois Grain and Hog Farms and 260- to 339-Acre Dairy Farms

	Grain farms			Hog farms			Dairy farms		
	1977	1976	1973-77 average	1977	1976	1973-77 average	1977	1976	1973-77 average
Number of farms.....	167	144	133	50	47	44	28	31	28
Total acres.....	419	420	421	412	414	412	302	299	301
Soil-productivity rating <sup>a</sup> .....	63	64	63	60	60	59	58	59	59
Total cash sales.....	\$ 82,208	\$ 84,110	\$ 78,740	\$146,705	\$141,269	\$125,582	\$108,215	\$103,688	\$ 92,952
Less purchased feed and livestock.....	7,875	6,030	7,622	42,917	43,551	37,650	20,769	19,235	19,992
Net cash sales.....	74,333	78,080	71,118	103,788	97,718	87,932	87,446	84,453	72,960
Inventory change.....	5,276	5,040	7,828	4,366	-1,054	6,818	5,027	1,252	6,146
Farm products consumed.....	218	240	251	373	513	467	826	1,029	767
Value of farm production.....	79,827	83,360	79,197	108,527	97,177	95,217	93,299	86,734	79,873
Cash operating expenses.....	32,187	32,889	28,856	44,093	41,913	36,100	40,387	37,133	32,669
Annual depreciation.....	10,059	9,194	8,359	16,193	14,034	11,908	13,001	11,654	10,734
Farm and family earnings.....	37,581	41,277	41,982	48,241	41,230	47,209	39,911	37,947	36,470
Unpaid labor charge.....	10,251	9,673	8,906	10,368	10,502	9,697	13,200	13,312	11,702
Returns to capital and management.....	27,330	31,604	33,076	37,873	30,728	37,512	26,711	24,635	24,768
Interest charge on capital.....	29,350	27,225	22,573	32,978	29,905	24,205	24,376	23,341	19,599
Management returns.....	-2,020	4,379	10,503	4,895	823	13,307	2,335	1,294	5,169
Total cash income <sup>b</sup> .....	82,646	84,421	79,061	147,362	141,617	126,023	108,299	103,786	93,207
Total cash expenditures <sup>b</sup> .....	58,817	56,293	51,523	113,583	114,424	96,007	82,726	75,204	71,157
Cash balance.....	23,829	28,128	27,538	33,778	27,193	30,016	25,572	28,582	22,050
<b>FARM INVESTMENT</b>									
Livestock inventory.....	\$ 9,419	\$ 8,616	\$ 10,340	\$ 37,395	\$ 40,966	\$ 34,837	\$ 35,756	\$ 31,631	\$ 32,848
Grain inventory.....	42,915	41,875	37,396	52,098	46,361	41,996	31,292	32,386	26,922
Remaining capital cost in									
Machinery and auto.....	31,658	25,430	22,316	37,849	32,155	26,773	37,028	29,508	27,768
Buildings and fence.....	10,694	10,357	10,274	43,378	31,952	25,301	29,575	30,615	28,048
Soil fertility.....	60	56	36	120	11	46	0	0	0
Value of land (current basis)...	544,260	406,361	346,607	482,779	355,786	300,433	342,101	268,201	224,086
Total farm investment.....	639,006	492,695	426,969	653,619	507,231	429,386	475,752	392,341	339,672
Rate earned on investment, %..	4.28	6.41	7.75	5.79	6.06	8.74	5.61	6.28	7.29

<sup>a</sup> Adjusted in 1971. See Illinois Extension Circular 1156, Soil Productivity in Illinois.

<sup>b</sup> Includes sales or purchases of capital items.

average rate of 4.12 percent earned on investment is not enough to maintain the average operation over the long run. These data indicate that beef farms continue to compete for resources on the basis of availability of nonmarketable resources, above-average efficiency, or both.

**Dairy farms.** Farm and family earnings on northern Illinois dairy farms (260 to 339 acres) in 1977 averaged \$35,445 with operator and landlord shares combined (Table 5). This is the highest earning on record. Higher crop returns resulting from a 15-bushel-per-acre higher corn yield and a 16-bushel higher soybean yield in 1977 than in 1976, combined with steady milk prices and 3-percent higher milk production per cow, contributed to this increase in earnings. These farms averaged 53 cows per farm.

Cash operating expenses increased 11 percent from 1976. In the 5 years since 1972, when costs began to increase rapidly, these expenses have increased 84 percent, or an average of 16.8 percent per year. The average price received for milk in this same period increased

from \$5.52 per 100 pounds to \$9.24, or 13.4 percent per year. The 1973-1977 negative \$3,225 return for management indicates that the average farm competes for resources on the basis of availability of nonmarketable resources, above-average efficiency, or both. Operators having high equities in real estate may also be willing to accept lower returns on this investment and still maintain production.

### Southern Illinois farms

**Grain farms.** Farm and family earnings on southern Illinois grain farms (340 to 499 acres) in 1977 averaged \$37,581 with operator and landlord shares combined (Table 6). This is \$3,696 below 1976 and \$4,401 below the 1973-1977 average. The average price received for corn sold for the year was 44 cents lower per bushel. This price, combined with lower year-end inventory prices for grain, offset the effect of higher crop yields and the \$1.12-per-bushel higher average selling price for soybeans.

Cash operating expenses have increased an average of \$3,905 or \$11 per tillable acre per year from 1972 through 1976. The 1977 costs were \$702 lower than 1976 costs primarily because of lower fertilizer prices. The 1973-1977 average management returns are 13.3 percent of the value of all farm production.

**Hog farms.** Farm and family earnings on southern Illinois hog farms (340 to 499 acres) in 1977 averaged \$48,241 with operator and landlord shares combined (Table 6). This is 17 percent more than in 1976. High crop yields and large year-end increases in value of hogs inventoried made hog farms of this size the most profitable type of farm in Illinois in 1977.

Capital purchases for buildings and machinery continued at the same high level as in the previous 2 years. Cash operating expenses have increased an average of \$5,014 or 16.7 percent per year since 1973. The 5-year average rate of 8.74 percent earned on investment ranks this type of farm as the most profitable for this size

group. The 1973-1977 return for management and risk on these farms was 14.0 percent of the value of all farm production.

**Dairy farms.** Farm and family earnings on southern Illinois dairy farms (260 to 339 acres) in 1977 averaged \$39,911, \$1,964 above the 1976 earnings (Table 6). These are the highest earnings on record. The corn yield increase of 11 bushels per acre and the soybean yield increase of 5 bushels per acre over 1976, combined with favorable milk prices, helped to offset the 8-percent increase in cash operating expense.

The rate earned on investment for southern Illinois dairy farms for 1973-1977 averaged 7.29 percent, compared with 4.81 percent on farms of similar size in northern Illinois. Average number of cows per farm in 1977 was 61, which was 5 more than the average per farm in northern Illinois. Southern Illinois land values for 1973-1977 averaged \$268 per acre lower than for dairy farms in northern Illinois.

## LIVESTOCK ENTERPRISES

Table 7 shows the return (per \$100 feed fed) to various livestock enterprises and the price of corn during each of the past 15 years. Fifteen-year and 5-year averages are also shown. The difference between the average return figure and \$100 feed cost represents the margin available to pay labor, depreciation on equipment, cash expenses other than feed, and interest on investment, and also to provide for profit.

The margin needed to cover nonfeed costs varies with the kind of livestock and depends on the proportion of total production costs represented by feed. The 15-year averages (1963-1977) represent the approximate level of returns at which farmers have been willing to maintain livestock production. This average may not represent break-even return on all farms because some farmers may discount market prices for some resources used in producing livestock. If a farmer already has facilities for livestock, he need only cover operating costs to continue production. However, when he views livestock production as a new or long-run enterprise, he hopes to cover all costs — fixed and variable — or he may not undertake the enterprise.

As individual farmers try to increase profits, they tend to curtail livestock production when return per \$100 of feed fed is below the 15-year average. This tendency on the part of producers causes supplies of livestock products to fluctuate.

Feeder-cattle returns vary greatly from year to year. Long-run average returns, shown in Table 8, indicate that the cattle-feeding business is not paying average market rates for all resources used. Above-average skills are needed in buying, selling, and feeding to meet competition of other uses for time and money on farms feeding cattle. It is difficult to identify cyclic income

movements over a 15-year period in the beef-cattle industry because it is more complex and adjusts more slowly than other livestock enterprises.

Dairy- and beef-herd enterprise 10-year average returns above cost of feed are below the margin needed to cover all nonfeed costs (Table 8). The implication is that these enterprises compete most favorably on farms where there are plentiful labor, capital, and management resources that have few alternate uses. In 1977 the dairy enterprise had a record-high return of \$635 per cow above cost of feed, compared with the 10-year average of \$419. The beef-cow enterprise had a return of \$18 per cow above the cost of feed, compared with an average of \$39 for the past 10 years.

Table 7. — Returns per \$100 Feed Fed to Different Classes of Livestock

Year	Beef-cow herds	Dairy-cow herds	Feeder-cattle bought	Native sheep raised	Feeder-pig finishing	Far-row-to-finish hogs	Poultry	Yearly price of corn
<i>Dollars</i>								
1963.....	117	171	88	126	108	131	141	1.11
1964.....	107	174	112	124	122	142	141	1.12
1965.....	127	174	151	143	176	210	143	1.15
1966.....	132	190	117	129	140	178	168	1.23
1967.....	138	199	119	117	123	154	128	1.17
1968.....	156	210	142	133	134	170	167	1.02
1969.....	162	205	152	146	171	212	203	1.14
1970.....	150	199	118	128	104	142	186	1.26
1971.....	180	200	156	122	122	150	135	1.27
1972.....	208	212	161	134	171	214	134	1.16
1973.....	184	177	120	123	161	192	151	2.00
1974.....	41	138	64	94	108	121	125	3.00
1975.....	95	146	134	101	158	191	138	2.73
1976.....	91	168	93	105	118	152	146	2.55
1977.....	107	181	116	144	134	170	124	2.07
<b>Averages</b>								
1963-77.....	133	183	123	125	137	169	149	1.60
1963-67.....	124	182	117	128	134	163	144	1.16
1968-72.....	171	205	146	133	140	178	165	1.17
1973-77.....	104	162	105	113	136	165	137	2.47



**Table 8. — Variation in Returns to Livestock Enterprise Units, 1968-1977**

Year	Farrow-to-finish hogs, per cwt.	Feeder-pig finishing, per cwt.	Feeder cattle, per cwt.	Dairy cattle (cow)	Beef herd (cow) <sup>a</sup>	Poultry laying flock (hen)
<i>Returns above cost of feed and purchased animals</i>						
1968.....	\$ 7.57	\$ 3.54	\$ 7.85	\$350	\$ 60	\$2.26
1969.....	12.91	8.14	10.01	361	70	3.03
1970.....	5.37	.50	3.77	370	58	2.95
1971.....	6.51	2.89	12.14	389	87	1.10
1972.....	15.07	8.29	12.78	446	123	1.05
1973.....	20.70	12.75	6.94	438	128	2.61
1974.....	5.99	2.14	-15.87	282	-117	1.51
1975.....	24.39	14.24	15.64	349	-12	1.97
1976.....	13.00	4.27	-2.73	566	-22	2.63
1977.....	16.50	7.34	5.79	635	18	1.31
10-year av....	\$12.80	\$ 6.41	\$ 5.63	\$419	\$ 39	\$2.04
<i>Nonfeed costs, 1968-1977</i>						
Direct cash <sup>b</sup> ..	\$ 2.30	\$ 1.10	\$ 1.80	\$100	\$ 15	\$ .40
Other costs <sup>c</sup> ..	7.20	3.90	6.40	375	85	1.80
Total.....	\$ 9.50	\$ 5.00	\$ 8.20	\$475	\$100	\$2.20
<i>Nonfeed cost for future production<sup>d</sup></i>						
Direct cash...	\$ 3.50	\$ 1.75	\$ 2.00	\$115	\$ 20	\$ .60
Other costs...	11.25	5.75	10.00	635	115	2.20
Total.....	\$14.75	\$ 7.50	\$12.00	\$750	\$135	\$2.80

<sup>a</sup> The feed cost for beef herds includes up to \$42 of hay equivalent from salvage roughage.

<sup>b</sup> Includes veterinary costs, utilities, fuel and equipment repair costs, and other direct cash expenses. From Table 6, Farm Management Manual, January, 1977, AE-4426 (Rev. 1-3/1/78).

<sup>c</sup> Estimates of annual nonfeed costs are based on enterprise cost studies of operative units in 1968-1977.

<sup>d</sup> Nonfeed costs based on facility replacement costs and other inputs at 1977 prices.

The cyclical pattern of farrow-to-finish hog production is more easily identified (Table 8). Returns tend to exceed the 10-year average for one or two years and then drop below the average for one or two years. The 10-year average hog return above all costs (both feed and nonfeed) is \$3.30 per 100 pounds of pork produced (\$12.80 minus \$9.50), or about \$54 per litter.

Raising livestock is becoming more competitive. Average profit margins are narrow. Nonetheless, large numbers of farmers are willing to stay in business as long as their return covers only operating cost. Expansion plans involving large investments for new facilities should be based on an estimated return that is high enough to cover all costs. Fluctuations in livestock returns can involve a risk in low-return years. Estimated nonfeed cost for future livestock production is shown in Table 8.

## Hog enterprises

The information on farrow-to-finish enterprises in Table 9 is based on a sample of 876 farms farrowing 10 or more litters per year. Farms were omitted from the sample if the number of hogs purchased exceeded 10 percent of the pigs weaned. This eliminated those farms with combined farrowing and feeder-pig operations from the sample. Feeder-pig enterprise information is included in Table 11. The average size of farrow-to-

**Table 9. — Hog Enterprises, 1977**

	Farrow to finish		Feeder-pig production
	All farms	200 or more litters per farm	
Number of farms.....	876	120	14
<i>Average per farm</i>			
Pork produced, lb.....	189,578	496,086	62,510
Pork produced per litter, lb.....	1,662	1,574	534
Total returns.....	\$75,393	\$204,491	\$37,553
Value of feed fed.....	\$44,113	\$115,812	\$20,531
Returns per \$100 feed fed	\$170	\$176	\$182
Number of litters farrowed.....	114	315	117
Pigs farrowed per litter..	9.0	9.0	8.8
Pigs weaned per litter....	7.1	7.1	7.2
Number of pigs weaned..	809	2,236	842
Number that died after weaning.....	45	132	36
Death loss, percent of pounds produced.....	1.8	1.8	2.9
Weight per hog sold, lb...	242	234	53 <sup>a</sup>
<i>Per 100 pounds produced</i>			
Price received.....	\$39.10	\$40.19	\$65.48 <sup>a</sup>
Total return.....	\$39.76	\$41.22	\$60.07
Feed cost.....	\$23.27	\$23.35	\$32.84
Return above feed.....	\$16.49	\$17.87	\$27.23
Farm grains, lb.....	330	332	383
Commercial feed, lb....	87	93	143
Total concentrates, lb.....	417	425	526
Pasture (pasture-days)	.1	..	.1
Cost per 100 pounds of commercial feed.....	\$12.49	\$11.72	\$12.84
Cost per 100 pounds of concentrates.....	\$5.55	\$5.47	\$6.18

<sup>a</sup> The average weight sold and price received for the feeder-pig production enterprise is for the feeder pigs only.

finish enterprises on all record-keeping farms has been increasing at the rate of about four litters per year, from 77 litters (568 pigs weaned) per farm in 1967 to 114 litters (809 pigs weaned) in 1977.

Return per \$100 feed fed to farrow-to-finish enterprises was \$170 in 1977. The 1977 average price received per 100 pounds of pork sold decreased \$3.26 from the 1976 price of \$42.36. Feed cost to produce 100 pounds of pork decreased from \$24.81 in 1976 to \$23.27 in 1977. Feed conversion per 100 pounds of gain remained relatively stable at 417 pounds of concentrates.

The 1977 farrow-to-finish enterprise records reported in Table 9 were also sorted by the number of litters produced. One group farrowing 200 or more litters averaged 315 litters. Feed cost and feed conversion per 100 pounds of pork produced were essentially the same for the 315-litter group as for the average of all enterprises. The large producers paid about \$15 less per ton of commercial feeds. Prices received (net at the farm) for hogs sold by large producers were \$1.09 higher than those received by all producers.

The 10-year average return above feed cost per 100 pounds produced is \$12.80 (Table 8), which is \$3.70



below the 1977 returns. On the basis of detailed cost records, an average farmer with existing facilities would have required returns (above feed cost) of \$9.50 per 100 pounds to pay for all nonfeed cost during the past ten years. One litter in this period was equivalent to 16.5 hundredweight.

A summary of the feeder-pig production enterprises is also reported in Table 9. In 1977 the average enterprise in this group produced 117 litters with a return per \$100 feed fed of \$182. The average feeder-pig producer weaned 7.2 pigs per litter and sold the pigs at 53 pounds per head. The 1977 average price received per 100 pounds of feeder pigs sold was \$65.48 or \$34.70 per head. The average feed cost per 100 pounds of pork produced by the enterprise (pigs and breeding stock) was \$32.84 with a feed conversion of 526 pounds of concentrates.

A substantial profit margin is required to compensate for the risk and detailed management involved in hog production, compared with the risk and management involved in other uses for the same resources. Large-scale hog production in modern confinement facilities requires large capital investments. The future recovery of the capital is uncertain and the salvage value of confinement hog facilities is low. Also, the acquisition of the managerial skills necessary for producing a large volume of hogs in confinement may discourage any rapid expansion of large hog-producing units.

The data on hog enterprises in Table 10 show a detailed breakdown of costs and returns from a group of specialized commercial hog farms for 1974 through 1977. The value of feed fed to hogs was more than 100 percent of the feed and grain returns produced on these farms. This degree of livestock intensity indicates a

commitment of major resources to the hog enterprise. The producers in this group probably exercise a higher level of management and use more confinement production facilities than the average Illinois hog producer.

The hog enterprise records reported in Table 10 were sorted by the number of litters produced. The group farrowing under 250 litters averaged 147 litters from 1974 to 1977, while the group farrowing 250 or more litters averaged 387 litters during the same period.

The most significant cost difference between the two groups of farms was the feed cost. The 4-year (1974-1977) average feed cost for the large enterprises was \$2.38 per 100 pounds of pork produced lower than for the small enterprises. Feed conversion and the price paid for commercial feeds are reflected in the feed cost difference.

From 1974 to 1977 the average total nonfeed costs for the small and the large enterprise groups increased 35 and 38 percent, respectively. The 1977 nonfeed costs increased 7 and 9 percent, respectively, over 1976. Building, machinery, and equipment costs in 1977 were about 12 percent higher for the large enterprises than for the small enterprises. These higher costs were offset by a 15-percent lower labor cost, indicating the use of more labor-saving facilities on farms with large enterprises.

From 1974 to 1977 the returns above all costs averaged \$2.15 per 100 pounds of pork produced for the small enterprises and \$4.06 for the large enterprises, a difference of \$1.91. Management practices such as the choice of building systems, method of transporting hogs to market, type of market used, and on-farm versus off-farm feed processing systems will affect the individual cost items reported in Table 10. However, the return above all costs should accurately reflect the relative efficiency of the two groups of hog enterprises.

Table 10. — Costs and Returns for Farrow-to-Finish Hog Enterprises, by Size of Enterprise, 1974-1977

	Under 250 litters				250 or more litters			
	1977	1976	1975	1974	1977	1976	1975	1974
Number of farms.....	113	90	107	68	74	52	37	33
<b>Average per farm</b>								
Tillable acres.....	242	236	211	245	450	392	364	335
Number of litters.....	156	147	138	146	392	340	403	412
	<i>Per 100 pounds of pork produced</i>				<i>Per 100 pounds of pork produced</i>			
Total returns.....	\$41.85	\$38.63	\$52.68	\$34.07	\$41.64	\$37.39	\$49.90	\$34.48
Feed costs.....	24.61	26.43	28.09	29.65	23.23	24.30	25.20	26.55
Return above feed costs.....	\$17.24	\$12.20	\$24.59	\$4.42	\$18.41	\$13.09	\$24.70	\$7.93
<b>Nonfeed costs</b>								
Buildings.....	\$2.08	\$1.96	\$1.85	\$1.37	\$2.26	\$1.95	\$1.96	\$1.42
Machinery and equipment.....	2.75	2.68	2.60	2.11	3.15	2.88	2.70	1.96
Labor.....	3.60	3.46	3.38	3.08	3.05	3.00	2.90	2.73
Livestock expense.....	1.61	1.16	1.11	1.13	1.40	1.05	1.05	.88
Taxes.....	.19	.20	.14	.08	.16	.20	.11	.11
Interest charge on all capital.....	3.29	3.12	2.55	2.41	3.13	3.00	2.48	2.48
Insurance and overhead.....	.58	.60	.45	.30	.59	.56	.35	.38
Total nonfeed costs.....	\$14.10	\$13.18	\$12.08	\$10.48	\$13.74	\$12.64	\$11.55	\$9.96
Total all costs.....	\$38.71	\$39.61	\$40.17	\$40.13	\$36.97	\$36.94	\$36.75	\$36.51
Returns above all costs.....	\$3.14	—\$.98	\$12.51	—\$6.06	\$4.67	\$.45	\$13.15	—\$2.03

## Feeder-cattle and feeder-pig finishing enterprises

Operations for feeder-cattle and feeder-pig finishing enterprises in 1977 are presented in Table 11. These enterprise summaries include weights and values on partly finished animals purchased in previous years as well as on animals purchased in the current year.

Pork produced per farm from feeder-pig enterprises was 105,286 pounds in 1977 (Table 11). At 175 pounds of gain per head, this amounted to 602 head fed per farm in 1977, compared with 638 head in 1976.

Return above the cost of feed and purchased animals for 1968-1977 averaged \$6.41 per 100 pounds of gain. This compares with the estimated return of \$5.00 required to cover all of the nonfeed costs for the past 10 years and the \$7.50 required to consider future production (Table 8).

On the assumption that a 500-pound unit of gain equals one head of feeder cattle, the 125,336 pounds of beef produced per farm in 1977 (Table 11) are equal to 251 head. This is an increase of 72 head above the 179 head of cattle fed per farm in 1971. Return per \$100 feed fed for feeder-cattle enterprises was \$116 in 1977, compared with \$93 in 1976 and \$123 for the 15-year average (Table 7).

The price paid for feeders was \$1.96 per 100 pounds higher in 1977 than in 1976, while the price received for cattle sold in 1977 was \$1.42 higher. Average weight purchased and sold remained steady at 582 and 1,041 pounds per head. The feed cost was \$35.06 per 100 pounds produced in 1977, compared with \$39.35 in 1976.

Each 100 pounds of beef produced required 569

**Table 11. — Feeder-Cattle and Feeder-Pig Finishing Enterprises, 1977**

	Feeder cattle	Feeder-pig finishing
Number of farms. . . . .	418	165
<b>Average per farm</b>		
Total pounds produced. . . . .	125,336	105,286
Total returns. . . . .	\$51,208	\$30,171
Value of feed fed. . . . .	\$43,945	\$22,447
Returns per \$100 feed fed. . . . .	\$116	\$134
Death loss, percent of pounds produced. . . . .	2.1	1.9
Average weight purchased. . . . .	582	51
Price paid per 100 pounds. . . . .	\$39.47	\$76.80
Average weight sold. . . . .	1,041	232
<b>Per 100 pounds produced</b>		
Price received. . . . .	\$38.86	\$39.34
Total return. . . . .	\$40.86	\$28.66
Feed cost. . . . .	\$35.06	\$21.32
Return above feed. . . . .	\$5.80	\$7.34
Farm grains, lb. . . . .	518	312
Commercial feeds, lb. . . . .	51	72
Total concentrates, lb. . . . .	569	384
Hay, lb. . . . .	68	...
Corn silage, lb. . . . .	777	...
Other silage, lb. . . . .	188	...
Hay equivalent, lb. . . . .	409	...

pounds of concentrates and 68 pounds of hay. The amount of corn silage used in 1977 was 777 pounds and other silage 188 pounds, a total of 965 pounds. Silage utilization by the feeder cattle enterprise has remained relatively constant since 1970, with a 7-year average (1971-1977) of 976 pounds per 100 pounds of beef produced. The use of 965 pounds in 1977 was 2.1 times the amount fed in 1960. The end result of this shift has been increased production and utilization of crops from a fixed land resource. Mechanization of the silage-feeding operation has also reduced labor per unit of production.

These data do not show the wide variation in profits that exists among the cattle-feeding programs. Tables 7, 8, and 11 reflect the composite results of all types of feeder-cattle enterprises in Illinois as to quality and age of cattle fed. The data reported are heavily weighted with good-to-choice calves and yearlings as the predominant cattle-feeding systems. Many farmers are now feeding more than one drove of cattle each year to provide better utilization of fixed investments in mechanized feedlots.

Return above cost of feed and purchased animals averaged \$5.63 per 100 pounds of beef produced for the 10 years from 1968 through 1977 (Table 8). During this period, returns have ranged from -\$15.87 in 1974 to \$15.64 in 1975. In 4 of the past 10 years, returns above feed cost have been equal to or above the estimated \$8.20 per hundredweight required to pay for all nonfeed costs for the average cattle feeder.

Exclusive of feed and interest costs, the direct cash costs associated with cattle feeding average about \$1.80 per hundredweight. Return above feed cost has exceeded these direct cash costs per hundredweight in all of the past 10 years except in 1974 and 1976, when the return was a negative \$15.87 and \$2.73, respectively.

A large but declining number of cattle feeders in Illinois are apparently willing to feed cattle if their return is sufficient to cover feed and cash costs but is short of paying average market rates for some of the fixed and farm overhead costs.

Farmers' values, goals, and attitudes have been important in maintaining production on the one hand, while the dictates of the market, technological change, and shifts in basic supply and demand factors are causing the need for change on the other hand. The returns reflected in this average of all feeder-cattle enterprises would suggest that for cattle feeding to be profitable, farmers must produce the kind of beef the consumer wants at the lowest possible cost. Farmers considering expansion of this enterprise on farms where there are no nonmarketable feeds, unemployed labor, or fixed capital investments should budget carefully before they make new investments.

## Dairy enterprises

The minimum size of herd included in this analysis was 10 milk cows. The average size of dairy herds on



record-keeping farms has increased by about two cows per year since 1970.

Return per \$100 of feed fed to dairy enterprises in 1977 was \$181 and averaged \$162 for 1973-1977 (Table 7). Milk prices per hundredweight of milk sold remained steady, beef prices decreased 42 cents per 100 pounds of beef, and feed costs decreased \$2.98 in 1977 as compared with 1976.

Dairy farmers have reduced the amount of pasture and increased the amounts of grain and silage fed. Pasture-days per unit (1,000 pounds of milk or 100 pounds of beef) were 15 days prior to 1959, but since 1960 have declined to 2 days in 1977.

The dairy herds in Table 12 were subdivided into two groups: herds with 40 to 79 milk cows and herds with 80 or more cows. The small enterprises averaged 58 milk cows, compared with 98 for the large enterprise.

The main difference between the two groups is in the total volume of production; differences in efficiency of production are relatively small. In 1977 the return above cost of feed per cow for large herds was \$38 higher than for small herds. Large enterprises produced 229 pounds more milk per cow and received 28 cents more per hundredweight of milk than small enterprises.

In 1977 the large herds also had higher feed costs, averaging \$1.29 more per unit of milk and beef feed equivalent (1,000 pounds of milk or 100 pounds of beef). They used slightly more concentrates than small herds but about 0.4 of a ton less roughage (hay equivalent).

Return above the cost of feed for all dairy herds was \$635 per cow in 1977 (Table 12). This compares

Table 12. — Dairy-Cattle Enterprise, 1977

	All farms	Number of cows	
		40-79	80+
Number of farms.....	298	169	44
<b>Average per farm</b>			
Number of cows.....	57.0	58.2	98.3
Milk cows dry, pct.....	14.0	13.7	13.8
Animal units in herd.....	105	107	181
Total returns.....	\$80,824	\$82,222	\$144,462
Value of feed fed.....	\$44,609	\$45,360	\$78,436
Returns per \$100 feed fed..	\$181	\$181	\$184
Returns above feed per cow	\$635	\$633	\$671
Total milk produced, 100 lb.....	7,670	7,824	13,440
Milk per cow, lb.....	13,456	13,443	13,672
Butterfat per cow, lb.....	497	497	519
Total beef produced, lb....	34,213	35,283	55,750
Beef per cow, lb.....	600	606	567
Death loss, percent of pounds produced.....	11.3	11.3	11.6
Price received for			
100 lb. milk.....	\$9.24	\$9.20	\$9.48
100 lb. beef.....	\$29.46	\$29.43	\$29.52
Per unit of milk and beef <sup>a</sup>			
Feed cost.....	\$40.21	\$39.95	\$41.24
Grain, lb.....	325	323	336
Protein and minerals, lb.	83	86	85
Total concentrates, lb.	408	409	421
Hay and dry roughage, lb.....	277	269	238
Corn silage, lb.....	688	655	774
Other silage, lb.....	418	424	459
Pasture (pasture-days)...	2	3	...
Pasture-days per animal unit.....	29	32	9
Hay equivalent per cow, tons.....	7.3	7.3	6.9

<sup>a</sup> 1,000 pounds of milk or 100 pounds of beef.

Table 13. — Milk Production Costs and Returns by Size of Herd, 1974-1977

	40-79 cows in herd				80 or more cows in herd			
	1977	1976	1975	1974	1977	1976	1975	1974
Number of farms.....	137	140	128	87	50	42	41	24
<b>Average per farm</b>								
Tillable acres.....	256	256	251	248	426	410	421	393
Number of cows.....	58.4	57.4	55.6	57.0	101.7	98.3	94.7	95.1
Milk per cow, lb.....	13,830	13,092	12,298	11,906	14,303	13,850	12,755	12,096
<i>Per 100 pounds of milk produced</i>								
Price received.....	\$9.18	\$9.25	\$7.97	\$7.97	\$9.23	\$9.30	\$7.99	\$7.90
Feed costs.....	5.07	5.59	5.57	5.58	5.15	5.47	5.41	5.28
Returns above feed costs.....	\$4.11	\$3.66	\$2.40	\$2.39	\$4.08	\$3.83	\$2.58	\$2.62
<b>Nonfeed costs</b>								
Buildings.....	\$ .34	\$ .34	\$ .35	\$ .31	\$ .45	\$ .38	\$ .42	\$ .30
Machinery and equipment.....	.98	.94	.94	.83	.92	.87	.87	.73
Labor.....	1.34	1.40	1.32	1.21	1.17	1.20	1.22	.98
Livestock expense.....	.49	.49	.42	.38	.55	.49	.48	.36
Taxes.....	.09	.09	.09	.07	.04	.04	.05	.04
Interest charge on all capital.....	.93	.94	.93	.76	.79	.78	.80	.66
Insurance and overhead.....	.10	.10	.08	.07	.09	.08	.08	.06
Total nonfeed costs.....	\$4.27	\$4.30	\$4.13	\$3.63	\$4.01	\$3.84	\$3.92	\$3.13
Total all costs.....	\$9.34	\$9.89	\$9.70	\$9.21	\$9.16	\$9.31	\$9.33	\$8.41
Returns above all cost.....	-\$ .16	-\$ .64	-\$1.73	-\$1.24	\$ .07	-\$ .01	-\$1.34	-\$ .51



Table 14. — Beef-Cow Enterprises, 1977

	All farms	Calves sold	Calves fed out
Number of farms. . . . .	570	224	242
<b>Average per farm</b>			
Number of cows in herd. . .	41	42	42
Animal units in herd. . . . .	60	59	65
Total pounds produced. . .	28,160	22,234	35,231
Beef per cow in herd, lb. . .	686	529	838
Total returns. . . . .	\$10,428	\$8,113	\$13,268
Value of feed fed. . . . .	\$9,672	\$7,345	\$12,321
Returns per \$100 feed fed. .	\$107	\$110	\$107
Returns above feed per cow	\$18	\$18	\$22
Death loss, lb. . . . .	1,524	1,325	1,719
Percent of pounds produced. . . . .	5.4	5.9	4.8
<b>Per 100 pounds produced</b>			
Price received. . . . .	\$35.35	\$34.76	\$36.22
Feed cost. . . . .	\$34.34	\$33.03	\$34.97
Grain, lb. . . . .	236	117	311
Protein and minerals, lb. .	37	28	42
Total concentrates, lb. . .	273	145	353
Hay and dry roughage, lb. . . . .	525	629	454
Corn silage, lb. . . . .	333	233	368
Other silage, lb. . . . .	56	62	51
Pasture-days. . . . .	32	40	27
Pasture-days per animal unit. . . . .	150	152	149
Hay equivalent per cow, tons. . . . .	4.9	4.9	5.2

with the 10-year average of \$419 per cow (Table 8). The 10-year average return above feed cost required to pay market prices for all nonfeed costs is estimated to be about \$475 per cow. The estimated return above feed cost required currently to attract new investments for dairy herds is about \$750 per cow.

The data on dairy enterprises in Table 13 show a detailed breakdown of 1974 through 1977 milk production costs and returns on specialized dairy farms by the number of cows in the herd. Farms included had no other livestock except dairy animals. All the total costs were accounted for either in crops grown or in the dairy enterprise. Total dairy enterprise costs were reduced by the amount of income derived from the sale or inventory of beef. The residual costs, or about 88 percent of the total cost, were considered the net cost to produce milk.

The most significant difference between the small and large herds over this 4-year period is the pounds of milk produced per cow and the feed cost per 100 pounds of milk produced. The large herds produced 469 pounds more milk per cow and averaged 13 cents lower feed cost per 100 pounds of milk produced than small herds. With the exception of buildings and livestock expense, all costs per 100 pounds of milk produced averaged slightly lower for the large herds.

The pounds of milk produced per cow continued to increase in 1977. Lower grain prices combined with an increase in both number of cows per farm and milk produced per cow in 1977 helped to offset the increase in costs due to inflation.

Table 15. — Poultry Enterprises, 1977

	Number of hens per farm	
	200-999	2,000 and over
Number of farms. . . . .	12	7
<b>Average per farm</b>		
Poultry produced, lb. . . . .	486	10,123
Total returns. . . . .	\$3,805	\$69,418
Value of feed fed. . . . .	\$3,193	\$55,963
Returns above feed per hen. . . . .	\$1.18	\$1.31
Returns per \$100 feed fed. . . . .	\$119	\$124
Average number of hens. . . . .	519	10,283
Eggs produced per hen. . . . .	157	229
Percent production. . . . .	43.0	62.7
Feed units. . . . .	7,123	203,126
Feed cost per feed unit. . . . .	\$ .45	\$ .28
Concentrates per feed unit, lb. . . . .	7.6	4.0
Cost per 100 pounds of concentrates. . . . .	\$5.89	\$6.89
Price per dozen eggs sold. . . . .	\$ .55	\$ .45

\* One dozen eggs or 1.5 pounds of weight produced.

Table 16. — Sheep Enterprises, 1977

	Native flocks
Number of farms. . . . .	54
<b>Average per farm</b>	
Wool and mutton produced, lb. . . . .	3,106
Total returns. . . . .	\$1,394
Value of feed fed. . . . .	\$967
Returns per \$100 feed fed. . . . .	\$144
Percent lamb crop. . . . .	121
Death loss, lb. . . . .	537
Percent of pounds produced. . . . .	17.3
<b>Per 100 pounds produced</b>	
Price received. . . . .	\$44.87
Feed cost. . . . .	\$31.13
Concentrates, lb. . . . .	271
Hay, lb. . . . .	450
Corn silage, lb. . . . .	128
Pasture (pasture-days). . . . .	29
Hay equivalent. . . . .	1,207

## Beef-cow herds

The minimum size of a beef-cow herd included in Table 14 was 10 cows. Farms with combinations of cow herds and purchased feeder cattle were not included. In addition to all farms, Table 14 shows an analysis of cow herds where calves were sold at weaning time, comparing them with those where calves were finished to slaughter weights. For the period 1956 to 1969 the average size of cow herd on all farms ranged from 25 to 30 cows. From 1969 to 1973 the average herd grew to about 40 cows and has been stable at that number for the past 5 years. Most Illinois farmers who maintain a beef-cow herd do so as a supplemental enterprise to market nonsalable feeds and labor.

Return per \$100 feed fed to beef-cow herds in 1977 averaged \$107, compared with \$91 in 1976 and \$95 in 1975. Return for 1973-1977 averaged \$104, which was

\$29 below the 15-year (1963-1977) average (Table 7). Beef prices in 1977 averaged \$35.35, compared with \$34.07 in 1976, while feed costs decreased from \$37.82 to \$34.34. Improved returns in 1977 were a result of lower feed costs and slightly higher beef prices.

The added return above feed cost for feeding out calves over selling calves at weaning has averaged \$6 per cow for the period 1972 to 1977. The additional return is for the added costs of labor, buildings, and capital required to feed out calves. The 1977 return above feed cost for feeding out calves was \$4 higher per cow than for selling calves at weaning.

### **Poultry enterprises**

The minimum size of flock included in Table 15 is 200 hens. Table 15 shows an analysis of poultry flocks ranging in size from 200 to 999 hens and of flocks with over 2,000 hens. The smaller farm flocks averaged 519 hens and the larger commercial flocks 10,283 hens. Poultry in Illinois is rapidly being concentrated in fewer but larger and industrialized operations.

Farms with more than 2,000 hens used 4 pounds of feed concentrates per dozen eggs produced, or per 1.5 pounds of weight produced. For 1977 the feed cost per dozen eggs was 28 cents. Egg prices decreased from 56 cents in 1976 to 45 cents in 1977.

Flocks with more than 2,000 hens had returns of \$1.31 above feed costs per hen in 1977, compared with the 10-year average of \$2.04 (Table 8). About one-third of these farms sold a major share of their eggs through retail outlets.

### **Sheep enterprises**

Sheep production is a minor enterprise on Illinois record-keeping farms. The minimum size of enterprise in Table 16 is three animal units. One animal unit of sheep is defined as 750 pounds of liveweight. Return per \$100 feed fed in 1977 was \$144 for native flocks. Pounds of wool and mutton produced per farm have remained fairly constant for the past 10 years. Most Illinois farmers who keep sheep do so as a supplemental enterprise to market nonsalable feeds and labor.

**Costs, returns, financial summaries, investments, land use, and crop yields for different sizes and types of farms in northern and southern Illinois are reported in Tables 17 to 21a on pages 14 through 23.**



Table 17. — Average Costs, Return, and Financial Summary of Grain Farms by Size and Soil Rating, Northern Illinois, 1977<sup>a</sup>

GRAIN FARMS WITH SOIL RATING 86-100 <sup>b</sup>							GRAIN FARMS WITH SOIL RATING 56-85 <sup>b</sup>				
Range in size (total acres)	260-339	340-499	500-649	650-799	800-949	950+	260-339	340-499	500-649	650-799	800+
Number of farms.....	93	256	177	84	52	53	50	94	110	48	87
Size of farms.....	299	422	568	717	865	1,242	306	415	572	722	1,148
Acres of tillable land....	287	406	545	689	828	1,191	288	389	535	673	1,066
Soil rating on till. land.	93	94	93	93	94	93	77	76	78	77	77
DOLLAR COSTS PER FARM											
Soil fertility.....	\$ 8,161	\$10,843	\$15,781	\$20,684	\$24,105	\$33,140	\$ 7,440	\$10,284	\$14,912	\$18,779	\$30,616
Buildings and fence.....	2,445	2,882	3,403	4,209	4,630	6,814	2,209	2,802	3,362	4,727	6,463
Machinery and equipment...	15,457	20,127	26,102	30,463	36,240	55,038	14,593	18,951	24,555	30,141	44,413
Labor.....	10,113	11,060	13,442	15,902	18,328	26,025	10,477	10,776	12,326	14,347	20,340
Taxes.....	4,605	6,626	8,874	11,047	12,151	18,298	4,055	5,460	7,454	9,411	14,524
Seed and crop expenses....	7,297	10,296	13,576	16,851	21,138	30,499	7,199	9,333	13,682	17,918	26,978
Livestock expense.....	41	70	99	64	66	71	68	71	89	76	131
Ins. & misc. expense.....	2,069	2,555	3,032	3,824	4,699	6,830	1,866	2,153	3,077	3,426	5,381
Interest on capital.....	35,571	50,792	67,921	85,202	100,886	142,916	30,759	42,027	57,132	72,587	109,370
Total non-feed costs.....	85,760	115,250	152,231	188,246	222,242	319,631	78,665	101,857	136,588	171,412	258,216
Total value of feed fed....	38	58	63	117	180	144	27	55	66	114	179
DOLLAR RETURNS PER FARM											
Feed and grain returns....	\$68,802	\$98,552	\$129,109	\$166,685	\$202,406	\$301,515	\$66,574	\$86,722	\$119,907	\$152,320	\$245,393
Lvstk. ret. above feed....	8	57	- 1	- 73	108	- 23	27	43	69	83	111
Custom work.....	767	1,025	1,406	1,690	1,643	3,561	862	607	964	1,169	1,866
Other cash income.....	1,321	1,384	1,912	2,150	2,202	3,435	777	1,567	1,799	2,298	3,089
Value of farm production..	70,899	101,018	132,426	170,453	206,358	308,488	68,240	88,940	122,739	155,869	250,459
Management returns.....	-14,861	-14,232	-19,804	-17,793	-15,884	-11,143	-10,425	-12,917	-13,850	-15,543	-7,757
Farm production per \$1.00 of non-feed costs.....	.83	.88	.87	.91	.93	.97	.87	.87	.90	.91	.97
Farm production per man...	66,501	86,152	90,346	100,243	106,914	116,889	62,320	78,667	98,298	93,785	118,300
FINANCIAL SUMMARY											
Cash sales.....	\$82,874	\$115,476	\$155,430	\$194,559	\$235,182	\$337,865	\$72,090	\$98,064	\$131,205	\$167,317	\$244,225
Sales of capital items....	338	464	898	850	2,314	934	289	241	486	1,052	1,257
Total cash income.....	83,212	115,940	156,327	195,409	237,496	338,799	72,379	98,305	131,691	168,369	245,482
Purchased livestock.....	49	64	62	86	236	305	37	54	48	502	278
Purchased feed.....	61	587	545	253	2,209	5,137	467	94	554	220	543
Cash operating expenses...	31,438	41,806	57,911	71,963	87,592	130,991	29,920	38,127	54,080	67,460	107,305
Purchase of capital items..	12,049	18,268	20,765	27,417	34,041	49,558	10,205	14,524	23,854	31,132	45,273
Total cash expenditures...	43,596	60,724	79,282	99,719	124,079	185,991	40,629	52,800	78,536	99,314	153,399
Cash balance.....	\$39,615	\$55,215	\$77,045	\$95,689	\$113,417	\$152,807	\$31,750	\$45,504	\$53,154	\$69,055	\$92,083
Inventory charge.....	-11,896	-13,833	-22,420	-23,802	-26,398	-23,949	-3,368	-8,999	-7,886	-10,791	7,030
Capital change.....	2,096	4,926	3,616	6,311	9,678	17,013	1,458	2,398	7,762	9,341	15,144
Farm products consumed...	30	27	24	35	20	15	22	23	22	65	26
Farm and family earnings..	29,845	46,335	58,265	78,233	96,717	145,886	29,861	38,926	53,052	67,670	114,283
Labor and mgt. earnings....	-5,975	-4,988	-10,478	-8,379	-6,507	-1,860	-1,225	-3,534	-4,526	-6,076	1,783
Capital and mgt. per acre.	69.23	86.58	84.69	93.96	98.29	106.52	66.54	70.13	75.61	78.99	88.74
Rate earned on invest. %..	2.67	3.30	3.25	3.61	3.82	4.19	3.02	3.20	3.46	3.60	4.19

a/ Variations in totals are due to rounding to the nearest dollar.

b/ Value of feed fed to livestock was less than one percent of feed and grain returns.



Table 17a. — Average Operating Costs, Investments, and Land Use of Grain Farms by Size and Soil Rating, Northern Illinois, 1977<sup>a</sup>

	GRAIN FARMS WITH SOIL RATING 86-100 <sup>b</sup>							GRAIN FARMS WITH SOIL RATING 56-85 <sup>b</sup>						
	260-339 93	340-499 256	500-649 177	650-799 84	800-949 52	950+ 53		260-339 50	340-499 94	500-649 110	650-799 48	800+ 87		
COSTS AND RETURNS PER														
TILLABLE ACRE														
Soil fertility.....	\$ 28.47	\$ 26.67	\$ 28.95	\$ 30.01	\$ 29.12	\$ 27.81		\$ 25.82	\$ 26.47	\$ 27.89	\$ 27.92	\$ 28.72		
Buildings and fence.....	8.53	7.09	6.24	6.10	5.59	5.71		7.66	7.21	6.28	7.02	6.06		
Machinery and equipment..	53.93	49.51	47.88	44.20	43.79	46.19		50.65	48.78	45.92	44.81	41.66		
Labor.....	35.28	27.21	24.65	23.07	22.14	21.84		36.36	27.73	23.05	21.33	19.08		
Value of feed fed.....	.13	.14	.11	.16	.21	.12		.09	.14	.12	.16	.16		
Feed and grain returns....	240.08	242.46	236.85	241.89	244.58	253.08		231.08	223.22	224.28	226.48	230.23		
Livestock return above feed	.02	.14	.00	.10	.13	.01		.09	.11	.12	.12	.10		
Value of farm productions	247.39	248.53	242.94	247.36	249.36	258.93		236.86	228.93	229.57	231.76	234.98		
Total non-feed costs.....	299.25	283.55	279.27	273.19	268.56	268.29		273.05	262.18	255.48	254.87	242.26		
Management returns.....	-51.85	-35.01	-36.33	-25.82	-19.19	-9.35		-36.18	-33.24	-25.90	-23.11	-7.27		
SELECTED COST ITEMS														
Fertilizer, annual.....	\$ 8,161	\$10,843	\$15,781	\$20,684	\$24,105	\$33,140		\$ 7,440	\$10,284	\$14,904	\$18,779	\$30,452		
Building repairs.....	868	806	1,176	731	1,900	2,273		607	704	842	1,331	1,423		
Building depreciation....	1,577	2,076	2,227	3,478	2,729	4,541		1,602	2,098	2,520	3,396	5,040		
Mach. and equip. deprec..	8,038	10,801	14,023	16,779	19,319	27,069		6,857	9,788	13,079	17,343	23,666		
Mach. repairs, supplies..	2,931	3,753	5,253	5,883	7,737	12,013		2,729	3,449	4,779	5,397	9,023		
Machinery hire.....	932	1,018	1,096	975	1,185	4,146		1,305	1,336	1,162	1,562	1,756		
Gasoline and oil.....	2,329	3,177	4,187	4,965	6,302	9,005		2,388	2,868	3,799	4,227	7,388		
Unpaid labor charge.....	9,135	9,775	10,149	10,825	11,715	14,113		9,528	9,817	9,771	10,627	12,670		
Hired labor charge.....	978	1,285	3,293	5,078	6,612	11,912		949	959	2,555	3,720	7,670		
Total months of labor....	12.8	14.1	17.6	20.4	23.2	31.7		13.1	13.6	15.0	19.9	25.4		
Months of labor hired....	1.4	1.9	4.9	6.9	8.5	14.0		1.2	1.3	2.8	6.7	9.6		
FARM INVESTMENT														
Livestock inventory.....	\$ 127	\$ 173	\$ 149	\$ 430	\$ 391	\$ 240		\$ 135	\$ 243	\$ 207	\$ 404	\$ 645		
Grain inventory.....	71,501	102,448	143,514	169,836	196,642	274,336		55,536	83,477	107,256	143,972	169,366		
Remaining capital cost in														
Machinery and auto....	27,363	38,475	49,896	60,345	77,774	101,048		25,115	36,877	47,364	56,480	86,050		
Buildings and fence....	14,703	19,400	24,128	34,322	23,514	39,210		15,391	19,220	23,141	30,396	46,458		
Soil fertility.....	1	0	0	0	0	0		0	0	20	0	341		
Value of land (current)...	661,889	948,806	1,262,641	1,600,182	1,925,511	2,743,241		576,613	771,042	1,072,311	1,352,171	2,128,514		
Total farm investment....	775,583	1,109,302	1,480,327	1,865,114	2,223,832	3,158,075		672,789	910,858	1,250,300	1,583,423	2,431,376		
Total investment per acre	2,592	2,628	2,605	2,600	2,571	2,542		2,202	2,194	2,184	2,193	2,117		
Machinery investment														
per tillable acre.....	95.47	94.65	91.53	87.57	93.98	84.81		87.17	94.92	88.59	83.98	80.73		
PERCENT OF TILLABLE LAND IN														
Corn and corn silage....	54.5	53.8	55.8	55.7	53.8	58.2		53.6	55.2	52.8	57.1	60.2		
Soybeans.....	42.1	42.8	41.0	40.8	40.8	39.7		36.1	39.6	42.6	39.8	36.3		
Wheat.....	.6	.6	.8	.8	1.8	.5		2.8	2.5	3.1	1.4	2.3		
Other small grains.....	.0	.1	.3	.0	.2	.3		.5	.5	.1	.1	.2		
All hay and pasture crops	.4	.2	.4	.3	.4	.1		.3	.7	.4	.3	.4		
CROP YIELDS, bu. per acre														
Corn.....	122	125	122	121	125	127		112	110	111	111	112		
Soybeans.....	45	45	45	46	46	46		44	43	44	44	44		
Wheat.....	65	62	60	59	55	59		58	55	55	52	46		
Oats.....	73	71	69	64	60	74		87	77	82	63	50		

a/ Variations in totals are due to rounding to the nearest dollar.

b/ Value of feed fed to livestock was less than one percent of feed and grain returns.

Table 18. — Average Costs, Return, and Financial Summary of Hog Farms by Size and Soil Rating, Northern Illinois, 1977<sup>a</sup>

	HOG FARMS WITH SOIL RATING 86-100					HOG FARMS WITH SOIL RATING 56-85				
	0-179 24	180-259 25	260-339 30	340-499 53	500+ 56	0-179 24	180-259 35	260-339 68	340-499 91	500+ 153
Range in size (total acres)										
Number of farms.....										
Size of farm.....	145	221	303	398	720	132	225	299	407	758
Acres of tillable land.....	136	203	284	363	659	113	192	244	330	562
Soil rating on tillable land.....	93	93	93	91	92	76	73	73	75	73
Beef produced, cwt.....	24	96	122	188	453	44	54	166	255	534
Pork produced, cwt.....	1,966	1,697	2,327	2,861	4,538	1,847	2,090	1,918	2,421	3,070
DOLLAR COSTS PER FARM										
Soil fertility.....	\$ 4,266	\$ 6,068	\$ 8,209	\$10,644	\$20,217	\$ 3,781	\$ 6,194	\$ 7,040	\$ 9,198	\$15,563
Buildings and fence.....	3,858	5,112	7,225	9,795	16,447	5,044	6,208	5,564	7,695	11,471
Machinery and equipment.....	13,970	17,105	21,613	27,604	46,362	11,996	16,588	18,346	24,565	35,277
Labor.....	12,075	12,431	12,884	18,283	28,368	11,015	12,423	13,230	15,890	20,845
Taxes.....	2,437	3,609	4,556	6,088	10,234	1,726	2,640	3,526	4,596	7,113
Seed and crop expenses.....	3,763	5,712	7,500	10,687	17,587	3,173	4,247	6,016	7,909	13,575
Livestock expense.....	2,029	2,439	3,468	4,247	9,035	3,047	2,543	2,367	3,460	4,586
Insurance and misc. expense.....	1,902	2,111	2,582	3,661	6,163	1,314	2,120	2,288	2,781	4,419
Interest on capital.....	20,461	30,441	41,856	53,948	94,552	17,284	26,321	31,150	42,546	67,127
Total non-feed costs.....	64,761	85,027	109,893	144,958	248,965	58,380	79,285	89,527	118,640	179,976
Total value of feed fed.....	45,607	45,223	60,546	76,080	124,748	47,456	51,834	54,375	68,101	95,136
DOLLAR RETURNS PER FARM										
Feed and grain returns.....	\$23,627	\$41,064	\$58,907	\$75,393	\$142,163	\$21,172	\$34,802	\$44,808	\$61,198	\$103,642
Livestock return above feed....	34,794	26,038	39,038	46,583	76,952	32,528	37,826	32,758	42,993	51,191
Custom work.....	241	494	743	582	1,622	130	309	411	610	1,005
Other cash income.....	1,067	1,405	1,700	2,612	3,828	2,088	1,148	2,033	1,573	3,412
Value of farm production.....	59,729	69,001	100,387	125,171	224,565	55,918	74,085	80,010	106,373	159,251
Management returns.....	-5,032	-16,027	-9,505	-19,787	-24,400	-2,462	-5,200	-9,517	-12,267	-20,725
Farm production per \$1.00 of non-feed costs.....	.92	.81	.91	.86	.90	.96	.93	.89	.90	.88
Farm production per man.....	47,493	51,302	72,135	70,109	87,009	49,355	57,346	57,869	62,445	73,676
FINANCIAL SUMMARY										
Cash sales.....	\$89,285	\$110,252	\$145,621	\$186,437	\$327,067	\$91,488	\$103,787	\$117,116	\$153,653	\$222,088
Sales of capital items.....	67	387	416	422	1,564	100	1,166	173	356	1,018
Total cash income.....	89,352	110,639	146,037	186,859	328,631	91,588	104,953	117,289	154,008	223,106
Purchased livestock.....	3,024	10,837	6,633	13,487	23,599	8,524	4,707	9,249	8,611	20,379
Purchased feed.....	26,136	25,002	29,943	39,839	65,823	34,364	27,669	27,405	36,088	46,359
Cash operating expenses.....	25,165	32,849	42,002	59,206	108,115	22,552	29,868	35,323	47,833	76,371
Purchase of capital items.....	22,881	15,344	21,094	30,026	47,287	24,293	16,551	18,707	26,945	30,250
Total cash expenditures.....	77,205	84,032	99,671	142,557	244,825	89,732	78,795	90,684	119,477	173,358
Cash balance.....	\$12,146	\$26,607	\$46,366	\$44,301	\$83,806	\$ 1,855	\$26,157	\$26,604	\$34,530	\$49,747
Inventory change.....	- 613	-5,590	-8,960	-8,327	-13,571	7,158	2,515	- 687	-2,984	3,289
Capital change.....	13,880	3,556	5,962	8,924	13,111	15,593	2,930	6,133	9,642	5,953
Farm products consumed.....	216	177	301	387	491	160	159	235	404	611
Farm and family earnings.....	25,629	24,750	43,670	45,285	83,838	24,765	31,761	32,285	41,592	59,601
Labor and management earnings..	4,168	- 6,555	- 212	-10,640	-15,128	6,262	4,149	- 382	-2,896	-11,342
Capital and mgt. earnings per acre.....	106.23	65.17	106.80	85.85	97.49	112.01	93.78	72.32	74.44	61.40
Rate earned on investment %....	3.69	2.32	3.77	3.11	3.61	4.40	4.08	3.43	3.50	3.34

<sup>a</sup>/ Variations in totals are due to rounding to the nearest dollar.



Table 18a. — Average Operating Costs, Investments, and Land Use of Hog Farms by Size and Soil Rating, Northern Illinois, 1977<sup>a</sup>

	HOG FARMS WITH SOIL RATING 86-100					HOG FARMS WITH SOIL RATING 56-85				
	0-179 24	180-259 25	260-339 30	340-499 53	500+ 56	0-179 24	180-259 35	260-339 68	340-499 91	500+ 153
Range in size (total acres)...										
Number of farms.....										
COSTS AND RETURNS PER TILLABLE ACRE										
Soil fertility.....	\$ 31.41	\$ 29.89	\$ 28.94	\$ 29.34	\$ 30.68	\$ 33.34	\$ 32.30	\$ 28.87	\$ 27.86	\$ 27.70
Buildings and fence.....	28.40	25.18	25.47	27.00	24.96	44.48	32.38	22.81	23.31	20.41
Machinery and equipment.....	102.87	84.27	76.19	76.10	70.36	105.80	86.52	75.23	74.42	62.79
Labor.....	88.91	61.24	45.41	50.40	43.05	97.15	64.79	54.25	48.14	37.10
Value of feed fed.....	335.86	222.81	213.43	209.74	189.32	418.57	270.37	222.99	206.32	169.35
Feed and grain returns.....	173.99	202.32	207.66	207.84	215.76	186.74	181.53	183.76	185.41	184.49
Livestock return above feed...	256.22	128.28	137.61	128.42	116.79	286.90	197.30	134.34	130.25	91.12
Value of farm production.....	439.85	339.97	353.89	345.07	340.82	493.21	386.43	328.12	322.27	283.48
Total non-feed costs.....	476.91	418.94	387.40	399.62	377.85	514.92	413.56	367.16	359.44	320.38
Management returns.....	-37.05	-78.96	-33.50	-54.54	-37.03	-21.71	-27.12	-39.03	-37.16	-36.89
SELECTED COST ITEMS										
Fertilizer, annual.....	\$ 4,266	\$ 6,068	\$ 8,209	\$10,639	\$20,215	\$ 3,781	\$ 6,192	\$ 6,941	\$ 9,194	\$15,548
Building repairs.....	962	1,139	2,049	1,972	3,776	984	1,101	1,142	1,538	3,121
Building depreciation	2,896	3,974	5,177	7,823	12,672	4,060	5,108	4,422	6,156	8,350
Machinery and equipment depr.	6,038	7,428	9,539	12,851	19,938	4,541	7,347	7,890	10,787	14,914
Machinery repairs, supplies...	2,893	3,320	4,747	5,579	10,082	2,399	3,481	3,879	5,468	8,499
Machinery hire.....	966	1,268	1,616	1,677	3,827	1,699	889	1,592	1,726	2,286
Gasoline and oil.....	1,947	2,964	3,211	4,120	6,899	1,477	2,471	2,770	4,040	5,941
Unpaid labor charge.....	10,200	10,336	11,320	11,125	13,686	9,943	10,640	10,653	11,314	13,199
Hired labor charge.....	1,875	2,095	1,564	7,158	14,682	1,072	1,783	2,577	4,576	7,646
Total months of labor.....	15.1	16.1	16.7	21.4	31.0	13.6	15.5	16.6	20.4	25.9
Months of labor hired.....	2.3	3.2	2.6	7.5	13.9	1.2	2.2	3.3	6.3	9.4
FARM INVESTMENT										
Livestock inventory.....	\$22,455	\$32,223	\$42,997	\$52,964	\$83,030	\$29,181	\$33,993	\$37,116	\$50,669	\$72,331
Grain inventory.....	30,678	46,864	66,190	88,859	151,450	20,956	33,297	44,614	55,574	88,055
Remaining capital cost in										
Machinery and auto.....	18,899	27,418	33,643	45,308	70,579	15,637	27,958	28,748	39,655	56,215
Buildings and fence.....	21,326	33,032	45,593	62,542	115,141	29,478	44,919	37,712	53,110	68,456
Soil fertility.....	0	0	0	5	2	0	0	133	8	44
Value of land (current).....	324,821	481,938	669,542	849,330	1,523,402	241,597	377,700	482,103	655,625	1,107,977
Total farm investment.....	418,179	621,475	857,965	1,099,009	1,943,604	336,850	517,867	630,426	864,641	1,393,079
Total investment per acre.....	2,879	2,810	2,832	2,762	2,701	2,545	2,299	2,108	2,126	1,838
Machinery investment per tillable acre.....	139.17	135.09	118.60	124.90	107.11	137.92	145.83	117.89	120.14	100.07
PERCENT OF TILLABLE LAND IN										
Corn and corn silage.....	74.3	72.1	69.1	72.4	66.4	73.4	72.1	69.2	67.1	63.8
Soybeans.....	8.8	16.9	20.3	18.2	25.5	9.7	11.9	14.3	16.1	19.9
Wheat.....	.0	.5	.8	1.0	1.6	1.1	1.7	3.2	3.5	4.2
Other small grains.....	8.0	4.1	4.1	1.8	1.3	5.4	4.8	2.7	3.4	2.0
All hay and pasture crops....	8.9	4.3	4.2	4.0	4.0	10.2	9.4	10.0	8.5	9.3
CROP YIELDS, bu. per acre										
Corn.....	106	107	112	110	115	113	105	102	103	98
Soybeans.....	48	46	48	46	45	43	45	41	43	42
Wheat.....	0	38	66	63	63	65	52	49	51	51
Oats.....	75	72	69	80	76	55	57	69	66	63

<sup>a</sup>/ Variations in totals are due to rounding to the nearest dollar.

Table 19. — Average Costs, Return, and Financial Summary of Grain and Hog Farms by Size and Soil Rating, Southern Illinois, 1977<sup>a</sup>

GRAIN FARMS WITH SOIL RATING 36-85							HOG FARMS WITH SOIL RATING 36-85				
Range in size (total acres)	180-259 35	260-339 56	340-499 156	500-649 133	650-799 109	800+ 192	0-179 17	180-259 18	260-339 45	340-499 48	500+ 88
Number of farms.....											
Size of farm.....	221	299	421	571	727	1,216	118	212	297	414	761
Acres of till. land.....	195	274	373	497	641	1,046	94	170	239	345	603
Soil rating on till. land..	60	62	61	60	61	60	59	62	60	59	58
Beef produced, cwt.....	47	64	115	107	113	204	11	92	103	84	412
Pork produced, cwt.....	178	137	258	306	388	487	1,658	1,498	1,571	2,374	3,176
DOLLAR COSTS PER FARM											
Soil fertility.....	\$ 4,175	\$ 5,729	\$ 8,138	\$11,300	\$15,029	\$24,126	\$ 2,381	\$ 5,464	\$ 6,166	\$10,185	\$15,987
Buildings and fence.....	1,320	1,559	2,398	3,595	4,395	7,095	4,757	5,657	4,276	6,982	11,588
Machinery and equipment...	9,154	11,828	17,899	22,707	28,414	46,929	9,916	14,681	16,483	22,392	37,001
Labor.....	9,886	10,413	11,784	12,528	14,872	22,883	13,135	10,578	12,320	14,022	22,444
Taxes.....	1,645	2,261	3,160	4,076	5,109	7,902	1,160	1,780	2,228	3,472	5,290
Seed and crop expenses....	3,559	4,786	6,221	9,147	12,038	20,701	1,607	3,733	4,329	6,227	12,193
Livestock expense.....	295	329	515	706	508	871	2,648	1,702	1,354	2,171	3,849
Insurance and misc. exp....	1,052	1,240	1,961	2,106	2,809	4,350	1,131	1,339	1,786	2,693	3,678
Interest on capital.....	14,872	21,425	28,505	38,838	48,729	79,049	12,200	18,684	22,131	31,946	54,388
Total non-feed costs.....	45,959	59,569	80,582	105,003	131,904	213,906	48,935	63,617	71,073	100,090	166,417
Total value of feed fed....	5,227	5,763	10,223	10,861	13,798	18,730	40,569	40,499	39,194	58,848	87,718
DOLLAR RETURNS PER FARM											
Feed and grain returns.....	\$37,145	\$53,721	\$72,810	\$96,861	\$126,694	\$208,025	\$15,193	\$31,065	\$40,129	\$63,119	\$109,877
Livestock return above feed	3,683	2,301	4,284	4,730	6,882	8,248	35,891	24,302	24,426	39,919	57,919
Custom work.....	290	266	476	814	965	1,445	56	294	283	471	659
Other cash income.....	1,047	960	1,239	2,171	2,353	4,004	699	1,329	2,008	2,093	3,948
Value of farm production...	42,167	57,248	78,809	104,577	136,895	221,721	51,840	56,990	66,846	105,602	172,403
Management returns.....	-3,792	-2,321	-1,773	-426	4,991	7,815	2,905	-6,628	-4,227	5,512	5,986
Farm production per \$1.00 of non-feed cost.....	.92	.96	.98	1.00	1.04	1.04	1.06	.90	.94	1.06	1.04
Farm production per man....	39,771	51,528	62,207	78,818	81,125	94,200	39,638	51,014	50,428	70,328	73,124
FINANCIAL SUMMARY											
Cash sales.....	\$44,548	\$58,379	\$80,926	\$111,875	\$143,039	\$226,483	\$81,559	\$83,614	\$94,031	\$143,283	\$232,124
Sales of capital items.....	514	259	469	1,244	1,138	1,963	0	417	134	673	903
Total cash income.....	45,062	58,638	81,395	113,119	144,177	228,446	81,559	84,031	94,164	143,956	233,027
Purchased livestock.....	1,019	2,499	3,489	4,021	3,687	6,189	1,662	10,545	12,651	10,604	27,456
Purchased feed.....	2,154	2,505	4,744	5,046	6,584	10,666	32,115	18,777	19,319	32,068	43,383
Cash operating expenses....	17,288	21,696	31,878	41,406	54,954	94,600	19,080	25,170	28,329	42,161	73,110
Purchase of capital items...	7,884	14,535	18,528	25,602	32,290	55,205	8,508	15,854	15,661	26,333	41,773
Total cash expenditures....	28,344	41,235	58,639	76,075	97,515	166,661	61,364	70,346	75,960	111,166	185,722
Cash balance.....	\$16,717	\$17,402	\$22,755	\$37,044	\$46,661	\$61,785	\$20,194	\$13,684	\$18,204	\$32,789	\$47,304
Inventory change.....	595	3,679	5,894	1,551	3,865	11,765	3,847	2,468	4,441	4,610	10,460
Capital change.....	2,885	7,577	8,127	10,344	14,338	26,327	537	5,030	5,492	10,260	16,060
Farm products consumed....	140	194	222	219	239	311	211	230	344	381	563
Farm and family earnings...	20,336	28,853	36,998	49,157	65,103	100,188	24,789	21,411	28,481	48,040	74,387
Labor and mgt. earnings....	5,042	6,908	7,419	8,801	14,173	17,311	11,221	2,395	5,221	14,478	15,336
Capital and management earnings per acre.....	49.92	63.85	63.67	67.28	74.03	71.73	127.69	56.75	61.28	90.52	79.35
Rate earned on invest. %...	3.43	4.05	4.33	4.58	5.09	5.07	6.88	3.32	4.05	5.90	5.49

a/ Variations in totals are due to rounding to the nearest dollar.



Table 19a. — Average Operating Costs, Investments, and Land Use of Grain and Hog Farms  
by Size and Soil Rating, Southern Illinois, 1977<sup>a</sup>

GRAIN FARMS WITH SOIL RATING 36-85							HOG FARMS WITH SOIL RATING 36-85				
	180-259 35	260-339 56	340-499 156	500-649 133	650-799 109	800+ 192	0-179 17	180-259 18	260-339 45	340-499 48	500+ 88
Range in size (total acres)											
Number of farms.....											
COSTS AND RETURNS PER TILLABLE ACRE											
Soil fertility.....	\$ 21.37	\$ 20.87	\$ 21.81	\$ 22.73	\$ 23.45	\$ 23.06	\$ 25.27	\$ 32.06	\$ 25.77	\$ 29.49	\$ 26.52
Buildings and fence.....	6.76	5.68	6.42	7.23	6.85	6.78	50.51	33.19	17.87	20.22	19.22
Machinery and equipment....	46.86	43.10	47.96	45.68	44.33	44.86	105.29	86.15	68.89	64.85	61.37
Labor.....	50.61	37.94	31.58	25.20	23.20	21.87	139.46	62.08	51.49	40.61	37.23
Value of feed fed.....	26.76	21.00	27.39	21.85	21.53	17.90	430.77	237.68	163.82	170.43	145.51
Feed and grain returns.....	190.18	195.75	195.13	194.87	197.69	198.88	161.32	182.31	167.73	182.81	182.27
Livestock return above feed	18.85	8.38	11.48	9.51	10.73	7.88	381.10	142.62	102.09	115.61	96.07
Value of farm production....	215.89	208.60	211.21	210.39	213.61	211.98	550.45	334.46	279.40	305.85	285.99
Total non-feed costs.....	235.31	217.07	215.96	211.25	205.83	204.51	519.61	373.37	297.07	289.89	276.07
Management returns.....	-19.41	- 8.45	- 4.75	- .85	7.78	7.47	30.84	-38.89	-17.67	15.96	9.92
SELECTED COST ITEMS											
Fertilizer, annual.....	\$ 4,174	\$ 5,725	\$ 8,117	\$11,291	\$15,025	\$24,055	\$ 2,381	\$ 5,464	\$ 6,105	\$10,138	\$15,938
Building repairs.....	298	501	753	822	1,276	1,858	779	1,099	1,152	1,578	2,879
Building depreciation.....	1,023	1,058	1,645	2,773	3,119	5,237	3,978	4,557	3,124	5,404	8,709
Mach. and equip. deprec....	3,461	5,636	8,266	11,232	13,692	21,607	3,992	5,850	6,850	9,949	16,052
Mach. repairs, supplies....	2,397	2,427	4,219	4,887	6,558	12,082	2,244	3,416	4,115	4,999	9,660
Machinery hire.....	818	635	838	1,158	1,674	2,815	735	840	1,160	1,600	1,622
Gasoline and oil.....	1,556	2,085	3,074	3,771	4,664	7,858	1,430	2,313	2,601	3,758	6,038
Unpaid labor charge.....	9,314	9,750	10,267	10,746	11,406	13,341	9,685	9,356	10,578	10,583	14,109
Hired labor charge.....	572	663	1,517	1,782	3,467	9,541	3,450	1,223	1,743	3,439	8,334
Total months of labor.....	12.7	13.3	15.2	15.9	20.2	28.2	15.7	13.4	15.9	18.0	28.3
Months of labor hired.....	1.1	1.1	2.4	2.5	6.0	11.6	3.6	1.7	2.7	4.8	10.7
FARM INVESTMENT											
Livestock inventory.....	\$ 5,609	\$ 5,813	\$ 9,786	\$10,853	\$13,898	\$ 20,700	\$26,317	\$27,809	\$25,527	\$36,200	\$62,530
Grain inventory.....	24,750	29,473	41,282	59,052	72,403	120,459	15,215	26,575	30,973	51,524	76,029
Remaining capital cost in											
Machinery and auto.....	13,606	21,004	31,998	42,266	51,261	79,394	14,827	23,654	26,595	36,934	62,199
Buildings and fence.....	6,801	8,089	10,741	19,707	22,759	35,580	29,087	26,173	21,055	39,489	58,343
Soil fertility.....	0	12	64	21	12	136	0	0	4	125	76
Value of land (current)....	270,271	406,830	524,881	707,141	897,567	1,463,692	134,111	258,680	344,960	470,108	841,347
Total farm investment.....	321,036	471,221	618,751	839,040	1,057,900	1,719,960	219,557	362,892	449,113	634,381	1,100,525
Total investment per acre..	1,453	1,574	1,470	1,469	1,455	1,414	1,856	1,708	1,511	1,533	1,446
Mach. invest./till. acre...	69.66	76.53	85.75	85.03	79.99	75.90	157.43	138.82	111.16	106.97	103.18
PERCENT OF TILLABLE LAND IN											
Corn and corn silage.....	30.6	30.4	35.2	35.5	36.8	37.4	53.3	64.0	52.5	46.7	49.9
Soybeans.....	46.9	43.1	40.0	41.2	39.4	42.0	24.2	16.7	20.9	29.8	26.1
Wheat.....	14.8	21.1	18.3	17.5	19.3	15.4	14.2	11.4	13.9	17.5	15.0
All hay and pasture crops..	6.7	4.4	4.9	4.5	3.2	3.6	5.7	6.6	9.2	4.9	6.6
CROP YIELDS, bu. per acre											
Corn.....	98	106	102	104	105	104	85	102	94	100	100
Soybeans.....	40	40	37	38	40	38	36	39	37	40	39
Wheat.....	50	49	47	47	46	45	47	48	43	44	46

<sup>a</sup>/ Variations in totals are due to rounding to the nearest dollar.

Table 20. — Average Costs, Return, and Financial Summary of Dairy Farms  
by Size and Soil Rating, Northern and Southern Illinois, 1977<sup>a</sup>

	DAIRY FARMS, NORTHERN ILLINOIS, WITH SOIL RATING OF 56-100					DAIRY FARMS, SOUTHERN ILLINOIS, WITH SOIL RATING OF 36-85				
	Under 180	180-259	260-339	340+		Under 180	180-259	260-339	340+	
Range in size (total acres).....	24	60	50	77		16	30	28	72	
Number of farms.....										
Size of farm.....	153	222	295	503		148	225	302	508	
Acres of tillable land.....	135	191	241	388		137	200	264	432	
Soil rating on tillable land.....	78	73	71	68		60	61	58	61	
Dairy cows, number.....	38	50	56	62		44	58	61	74	
Beef produced, cwt.....	0	13	29	161		0	0	0	19	
Pork produced, cwt.....	64	99	84	309		11	15	7	92	
DOLLAR COSTS PER FARM										
Soil fertility.....	\$ 1,988	\$ 4,192	\$ 5,424	\$10,611		\$ 3,427	\$ 5,611	\$ 7,427	\$11,415	
Buildings and fence.....	3,425	5,225	5,692	8,602		2,423	4,385	4,784	6,593	
Machinery and equipment.....	14,054	17,400	20,384	27,896		13,675	20,450	23,077	32,758	
Labor.....	12,841	15,827	16,712	21,889		13,909	15,264	17,480	21,348	
Taxes.....	2,061	2,634	3,303	5,110		1,383	1,955	2,565	3,936	
Seed and crop expenses.....	2,403	3,874	5,028	7,958		2,166	2,897	4,322	7,424	
Livestock expense.....	2,848	4,562	4,402	5,918		3,252	4,103	4,911	5,415	
Insurance and miscellaneous expense.....	1,575	1,771	2,015	2,802		1,059	1,481	2,022	2,569	
Interest on capital.....	17,599	24,747	29,201	45,418		13,287	20,986	24,376	39,459	
Total non-feed costs.....	58,794	80,232	92,160	136,205		54,579	77,130	90,964	130,918	
Total value of feed fed.....	28,915	42,964	45,997	66,576		34,816	45,409	47,765	62,606	
DOLLAR RETURNS PER FARM										
Feed and grain returns.....	\$26,080	\$38,364	\$46,616	\$74,276		\$25,804	\$38,808	\$48,936	\$80,516	
Livestock return above feed.....	24,473	33,562	36,239	47,301		26,626	39,717	41,808	47,996	
Custom work.....	366	319	367	882		287	100	277	692	
Other cash income.....	1,222	1,508	1,633	2,890		1,307	1,487	2,277	2,962	
Value of farm production.....	52,141	73,753	84,855	125,348		54,023	80,111	93,299	132,166	
Management returns.....	-6,653	-6,479	-7,305	-10,857		- 556	2,982	2,334	1,248	
Farm production per \$1.00 of non-feed cost	.89	.92	.92	.92		.99	1.04	1.03	1.01	
Farm production per man.....	38,425	44,333	46,167	53,868		36,255	47,907	47,218	57,550	
FINANCIAL SUMMARY										
Cash sales.....	\$58,106	\$86,750	\$93,830	\$143,115		\$67,678	\$95,463	\$108,215	\$149,231	
Sales of capital items.....	5	72	96	201		28	151	84	187	
Total cash income.....	58,111	86,822	93,926	143,316		67,706	95,615	108,299	149,418	
Purchased livestock.....	1,440	2,737	3,431	7,853		1,166	2,059	2,591	5,350	
Purchased feed.....	8,143	13,680	12,557	18,365		12,479	18,011	18,178	21,281	
Cash operating expenses.....	20,936	31,827	37,259	57,298		21,753	32,092	40,387	58,218	
Purchase of capital items.....	13,987	14,437	16,985	27,799		9,202	17,815	21,570	32,028	
Total cash expenditures.....	44,505	62,680	70,232	111,317		44,599	69,977	82,726	116,878	
Cash balance.....	\$13,605	\$24,141	\$23,694	\$31,999		\$23,107	\$25,638	\$25,572	\$32,540	
Inventory change.....	3,116	2,895	6,496	7,687		- 606	-3,959	5,027	8,793	
Capital change.....	5,089	3,413	4,738	9,107		2,434	5,798	8,485	13,200	
Farm products consumed.....	502	525	516	765		596	759	826	774	
Farm and family earnings.....	22,312	30,973	35,445	49,558		25,531	36,154	39,910	55,307	
Labor and management earnings.....	2,880	2,927	2,247	-1,346		9,044	12,542	11,935	10,832	
Capital and management earnings per acre	71.72	82.16	74.31	68.68		86.24	106.36	88.32	80.12	
Rate earned on investment % .....	3.07	3.70	3.70	3.75		4.94	5.88	5.61	5.08	

a/ Variations in totals are due to rounding to the nearest dollar.



Table 20a. — Average Operating Costs, Investments, and Land Use of Dairy Farms  
by Size and Soil Rating, Northern and Southern Illinois, 1977<sup>a</sup>

	DAIRY FARMS, NORTHERN ILLINOIS, WITH SOIL RATING OF 56-100				DAIRY FARMS, SOUTHERN ILLINOIS, WITH SOIL RATING OF 36-85			
	Under 180 24	180-259 60	260-339 50	340+ 77	Under 180 16	180-259 30	260-339 28	340+ 72
Range in size (total acres).....								
Number of farms.....								
COSTS AND RETURNS PER TILLABLE ACRE								
Soil fertility.....	\$ 14.71	\$ 21.99	\$ 22.55	\$ 27.35	\$ 25.10	\$ 28.11	\$ 28.16	\$ 26.39
Buildings and fence.....	25.36	27.41	23.66	22.17	17.74	21.97	18.14	15.24
Machinery and equipment.....	104.07	91.30	84.75	71.92	100.18	102.47	87.50	75.74
Labor.....	95.08	83.04	69.48	56.43	101.89	76.48	66.28	49.36
Value of feed fed.....	214.11	225.43	191.25	171.65	255.06	227.53	181.12	144.76
Feed and grain returns.....	193.12	201.29	193.82	191.50	189.03	194.45	185.56	186.18
Livestock return above feed.....	181.22	176.10	150.68	121.95	195.06	199.01	158.53	110.98
Value of farm production.....	386.10	386.98	352.82	323.18	395.77	401.42	353.78	305.61
Total non-feed costs.....	435.38	420.98	383.20	351.17	399.85	386.49	344.93	302.73
Management returns.....	- 49.26	- 33.99	- 30.37	- 27.99	- 4.07	14.94	8.85	2.88
SELECTED COST ITEMS								
Fertilizer, annual.....	\$ 1,982	\$ 4,192	\$ 5,424	\$10,611	\$ 3,427	\$ 5,611	\$ 7,427	\$11,405
Building repairs.....	817	1,173	1,370	1,899	940	1,096	1,215	1,624
Building depreciation.....	2,609	4,052	4,322	6,704	1,482	3,289	3,569	4,970
Machinery and equipment depreciation.....	6,278	6,900	7,829	11,787	5,257	8,577	9,432	13,661
Machinery repairs, supply.....	3,306	4,065	5,113	6,885	3,385	5,137	6,294	8,844
Machinery hire.....	708	1,481	2,004	1,957	1,249	1,402	1,413	2,223
Gasoline and oil.....	1,956	2,515	2,962	3,991	1,665	3,205	3,021	4,806
Unpaid labor charge.....	11,367	12,705	13,549	14,997	12,800	12,187	13,200	14,600
Hired labor charge.....	1,474	3,122	3,163	6,891	1,109	3,077	4,280	6,748
Total months of labor.....	16.3	20.0	22.1	27.9	17.9	20.1	23.7	27.6
Months of labor hired.....	2.1	4.1	5.1	9.2	1.9	4.8	7.2	9.3
FARM INVESTMENT								
Livestock inventory.....	\$22,272	\$29,997	\$35,028	\$50,538	\$25,959	\$29,843	\$35,756	\$42,160
Grain inventory.....	16,831	26,830	29,748	50,844	17,526	24,865	31,292	50,806
Remaining capital cost in								
Machinery and auto.....	20,315	24,468	29,591	45,098	19,049	30,442	37,028	50,285
Buildings and fence.....	23,612	43,725	43,237	66,670	11,986	31,895	29,575	41,696
Soil fertility.....	14	0	0	0	0	0	0	44
Value of land (current).....	273,892	368,628	454,822	709,157	183,135	290,550	342,101	616,488
Total farm investment.....	356,936	493,648	592,426	922,307	257,655	407,594	475,751	801,480
Total investment per acre.....	2,339	2,220	2,011	1,833	1,745	1,809	1,573	1,578
Machinery investment per tillable acre..	150.43	128.38	123.04	116.27	139.55	152.53	140.40	116.27
PERCENT OF TILLABLE LAND IN								
Corn and corn silage.....	44.1	50.9	52.4	57.0	49.5	50.2	43.8	39.7
Soybeans.....	5.1	3.6	5.2	7.3	4.8	11.4	16.7	23.6
Wheat.....	.4	.5	.9	2.9	12.0	11.5	12.3	17.7
Other small grains.....	9.4	8.5	8.5	6.1	.0	.0	.1	.2
All hay and pasture crops.....	41.0	36.1	32.6	27.1	32.9	27.9	26.9	18.1
CROP YIELDS, bu. per acre								
Corn.....	112	114	107	109	96	88	92	97
Soybeans.....	42.	47	44	40	40	40	36	37
Wheat.....	63	54	64	27	44	44	44	39
Oats.....	69	72	65	67	0	0	60	67

a/ Variations in totals are due to rounding to the nearest dollar.

Table 21. — Average Costs, Return, and Financial Summary of Beef-Cattle and Poultry Farms  
by Size and Soil Rating, Northern and Southern Illinois, 1977<sup>a</sup>

	BEEF-CATTLE FARMS, NORTHERN ILLINOIS SOIL RATING 56-100					BEEF-CATTLE FARMS, SOUTHERN ILLINOIS SOIL RATING 36-85		POULTRY FARMS, NORTHERN ILLINOIS SOIL RATING 56-100	
	180-259 15	260-339 35	340-499 58	500-649 36	650+ 48	Under 500 17	500+ 17	A11 9	
Range in size (total acres).....									
Number of farms.....									
Size of farm.....	234	301	415	554	963	331	874	362	
Acres of tillable land.....	205	262	337	464	789	249	611	328	
Soil rating on tillable land.....	79	80	80	80	80	60	59	85	
Hens, number.....	0	27	0	3	0	112	15	10,984	
Beef produced, cwt.....	1,158	1,177	1,790	2,488	4,005	1,115	1,747	78	
Pork produced, cwt.....	485	367	469	876	732	727	647	102	
DOLLAR COSTS PER FARM									
Soil fertility.....	\$ 6,261	\$ 7,980	\$ 9,627	\$14,950	\$25,516	\$ 7,615	\$14,734	\$ 7,605	
Buildings and fence.....	4,666	4,581	6,501	10,096	14,813	3,910	6,451	4,357	
Machinery and equipment.....	13,886	17,807	22,864	30,306	47,499	17,414	29,193	27,130	
Labor.....	11,329	11,827	13,427	17,918	24,716	12,168	22,631	17,486	
Taxes.....	3,047	3,751	5,198	6,614	10,793	2,656	5,420	6,931	
Seed and crop expenses.....	4,998	6,668	8,393	11,508	19,520	4,280	11,598	7,168	
Livestock expense.....	1,374	1,688	2,743	3,081	6,351	1,407	2,298	1,983	
Insurance and miscellaneous expense.....	2,038	2,152	2,722	3,556	5,850	1,540	3,486	2,813	
Interest on capital.....	29,284	35,894	47,830	66,676	109,651	25,029	54,541	41,583	
Total non-feed costs.....	76,883	92,348	119,306	164,705	264,709	76,019	150,352	117,056	
Total value of feed fed.....	47,922	50,849	73,071	102,532	150,061	42,503	81,524	64,482	
DOLLAR RETURNS PER FARM									
Feed and grain returns.....	\$41,678	\$55,982	\$70,460	\$99,088	\$174,976	\$43,312	\$95,118	\$66,570	
Livestock return above feed.....	15,481	14,053	13,593	28,545	42,410	7,722	16,206	21,142	
Custom work.....	162	488	808	866	1,250	106	1,539	860	
Other cash income.....	599	925	1,809	3,409	4,038	1,197	2,315	1,557	
Value of farm production.....	57,920	71,449	86,669	131,908	222,675	52,336	115,179	90,128	
Management returns.....	-18,963	-20,899	-32,637	-32,797	-42,035	-23,683	-35,173	-26,928	
Farm production per \$1.00 non-feed costs.....	.75	.77	.73	.80	.84	.70	.76	.77	
Farm production per man.....	48,514	57,378	58,525	70,100	89,499	41,834	48,819	45,570	
FINANCIAL SUMMARY									
Cash sales.....	\$114,250	\$126,421	\$192,645	\$270,078	\$430,036	\$109,618	\$234,163	\$166,882	
Sales of capital items.....	1,353	241	240	320	2,855	59	267	156	
Total cash income.....	115,614	126,662	192,885	270,399	432,892	109,677	234,430	167,038	
Purchased livestock.....	54,270	47,797	83,764	121,326	198,483	44,785	95,386	22,901	
Purchased feed.....	13,404	12,884	23,739	32,325	39,023	13,496	31,371	43,349	
Cash operating expenses.....	29,463	33,867	45,532	63,349	109,880	29,995	64,030	49,111	
Purchase of capital items.....	13,721	16,054	15,389	33,831	53,498	15,738	19,343	10,221	
Total cash expenditures.....	110,858	110,602	168,425	250,831	400,885	104,014	210,130	125,584	
Cash balance.....	\$ 4,755	\$16,060	\$24,460	\$19,567	\$32,006	\$ 5,663	\$24,300	\$41,454	
Inventory change.....	10,919	5,245	919	14,753	29,307	393	7,287	-10,697	
Capital change.....	3,768	4,214	227	11,597	18,336	5,508	1,660	-4,119	
Farm products consumed.....	425	463	609	728	838	606	486	194	
Farm and family earnings.....	19,867	25,982	26,214	46,645	80,487	12,170	33,733	26,832	
Labor and management earnings.....	-9,789	-11,368	-23,202	-23,308	-32,618	-14,553	-26,139	-18,039	
Capital and management earnings per acre.....	44.16	49.85	36.58	61.16	70.66	5.12	20.90	40.46	
Rate earned on investment % .....	1.77	2.07	1.57	2.53	3.04	.27	1.76	1.66	

a/ Variations in totals are due to rounding to the nearest dollar.



Table 21a. — Average Operating Costs, Investments, and Land Use of Beef-Cattle and Poultry Farms  
by Size and Soil Rating, Northern and Southern Illinois, 1977<sup>a</sup>

	BEEF-CATTLE FARMS, NORTHERN ILLINOIS SOIL RATING 56-100						BEEF-CATTLE FARMS, SOUTHERN ILLINOIS SOIL RATING 36-85		POULTRY FARMS, NORTHERN ILLINOIS SOIL RATING 56-100	
	180-259 15	260-339 35	340-499 58	500-649 36	650+ 48		Under 500 17	500+ 17	A11 9	
Range in size (total acres).....										
Number of farms.....										
COSTS AND RETURNS PER TILLABLE ACRE										
Soil fertility.....	\$ 30.54	\$ 30.45	\$ 28.57	\$ 32.19	\$ 32.34		\$ 30.78	\$ 24.01	\$	23.20
Buildings and fence.....	22.75	17.48	19.29	21.74	18.77		16.87	9.93		13.29
Machinery and equipment.....	67.73	67.96	67.85	65.26	60.20		71.75	48.82		82.76
Labor.....	55.26	45.14	39.84	38.58	31.32		51.28	38.83		53.34
Value of feed fed.....	233.76	194.08	216.84	220.78	190.19		177.45	131.96		196.72
Feed and grain returns.....	203.30	213.67	209.10	213.37	221.77		177.41	154.88		203.09
Livestock return above feed.....	75.51	53.63	40.33	61.46	53.75		36.28	27.18		64.50
Value of farm production.....	282.53	272.70	257.20	284.04	282.23		150.89	188.12		274.96
Total non-feed costs.....	375.04	352.47	354.06	354.67	335.51		313.47	246.85		357.12
Management returns.....	-92.50	-79.76	-96.85	-70.62	-53.27		-94.73	-58.72		-82.15
SELECTED COST ITEMS										
Fertilizer, annual.....	\$ 6,261	\$ 7,971	\$ 9,495	\$14,950	\$25,488		\$ 7,570	\$14,695		\$ 7,605
Building repairs.....	1,185	1,019	1,271	2,166	3,150		880	1,156		467
Building depreciation.....	3,481	3,562	5,230	7,931	11,663		3,030	5,295		3,890
Machinery and equipment depreciation.....	5,108	8,029	9,560	13,984	20,615		7,096	12,081		10,294
Machinery repairs, supplies.....	3,436	4,235	5,295	6,707	10,545		4,223	8,275		5,611
Machinery hire.....	1,845	1,107	2,052	1,822	5,596		1,531	1,842		3,646
Gasoline and oil.....	2,258	2,769	3,979	5,321	7,476		3,075	4,904		3,460
Unpaid labor charge.....	9,547	10,987	11,021	12,767	12,872		10,823	14,367		12,178
Hired labor charge.....	1,782	840	2,406	5,151	11,844		1,345	8,264		5,309
Total months of labor.....	14.3	14.9	17.8	22.6	29.9		15.2	27.6		23.7
Months of labor hired.....	4.4	1.2	4.0	6.6	13.8		1.7	9.6		8.5
FARM INVESTMENT										
Livestock inventory.....	\$53,282	\$55,389	\$86,368	\$121,203	\$177,279		\$52,095	\$93,884		\$20,056
Grain inventory.....	39,163	49,365	57,745	84,884	134,342		30,420	73,585		71,024
Remaining capital cost in										
Machinery and auto.....	20,308	28,298	34,839	50,480	75,435		24,780	47,934		37,159
Buildings and fence.....	36,103	40,132	50,383	71,409	117,946		23,382	45,858		30,502
Soil fertility.....	0	23	251	0	28		45	0		0
Value of land (current).....	434,397	550,933	736,583	1,010,934	1,731,214		364,286	841,010		722,092
Total farm investment.....	583,253	724,139	966,169	1,338,911	2,236,244		495,008	1,102,271		880,833
Total investment per acre.....	2,495	2,407	2,326	2,417	2,323		1,527	1,246		2,432
Machinery investment per tillable acre.	99.06	108.00	103.38	108.70	95.61		97.45	77.85		113.36
PERCENT OF TILLABLE LAND IN										
Corn and corn silage.....	68.0	72.4	66.2	72.2	76.5		48.2	43.4		55.3
Soybeans.....	6.8	7.7	11.6	9.6	10.2		8.8	19.5		37.5
Wheat.....	.3	.9	1.1	1.0	1.0		18.3	12.5		2.1
Other small grains.....	6.8	3.3	3.9	2.4	1.6		0	0		.5
All hay and pasture crops.....	18.0	15.8	16.2	13.4	9.7		22.7	22.4		4.5
CROP YIELDS, bu. per acre										
Corn.....	121	118	117	117	119		98	105		95
Soybeans.....	45	45	43	45	44		46	34		43
Wheat.....	58	61	54	51	52		47	41		24
Oats.....	62	64	72	71	68		0	0		30

a/ Variations in totals are due to rounding to the nearest dollar.

# ASSOCIATIONS, FIELDMEN, AND COOPERATORS ENROLLED

## Associations and Field Staff

### BLACKHAWK

703

Charles M. Roodhouse  
Kristian S. Lauritzen  
Lee K. Freedlund  
Benjamin A. Greiner  
Richard Tanton

### WESTERN

875

Thomas H. Jennings  
Kenneth F. Stevens  
Robert W. Baalman  
James L. Marshall  
Robert R. Tracy  
Gary Goodwin  
Roy L. Ewalt  
Darrell L. Duntzman

### SANGAMON VALLEY

723

Charles E. Botterbusch  
George W. Shafer  
Dorrence E. Brucker  
William H. Hamer  
Rodney B. Dye  
G. David Watterson

### LINCOLN

1,573

Wayne W. Marquart  
Edward A. Thurn  
Robert E. Rogers  
Michael E. Schmitz  
Arnold A. Galloway  
Allen D. Koker  
Thomas J. Nolte  
John E. White  
Dennis J. Graden  
Robert C. Peverly  
James H. Lutz  
Louis J. Aldag

## Associations and Fieldmen

### NORTHEASTERN

417

Donald R. Muehling  
William D. McMurty  
Thomas Sheldon  
George J. Young

### ILLINOIS VALLEY

877

Stephen R. Kingry  
Gerald E. Hulslander  
Grant W. McGill, Jr.  
Erland A. Loving  
Vern R. Grabbe  
Danny L. Stetson  
Bruce E. Burk

### PIONEER

1223

Keith W. Amstutz  
Jerry Crump  
Roland W. Meyer  
L. David Schroll  
Alvin T. LaMar  
Maurice E. Sprout  
Aaron Liesman  
Michael G. Bossert  
Daryl K. Petty

### EASTERN

552

Harry E. White  
Boyd A. Henry  
James H. Locher  
Roy Van Ostrand

### EAST CENTRAL

782

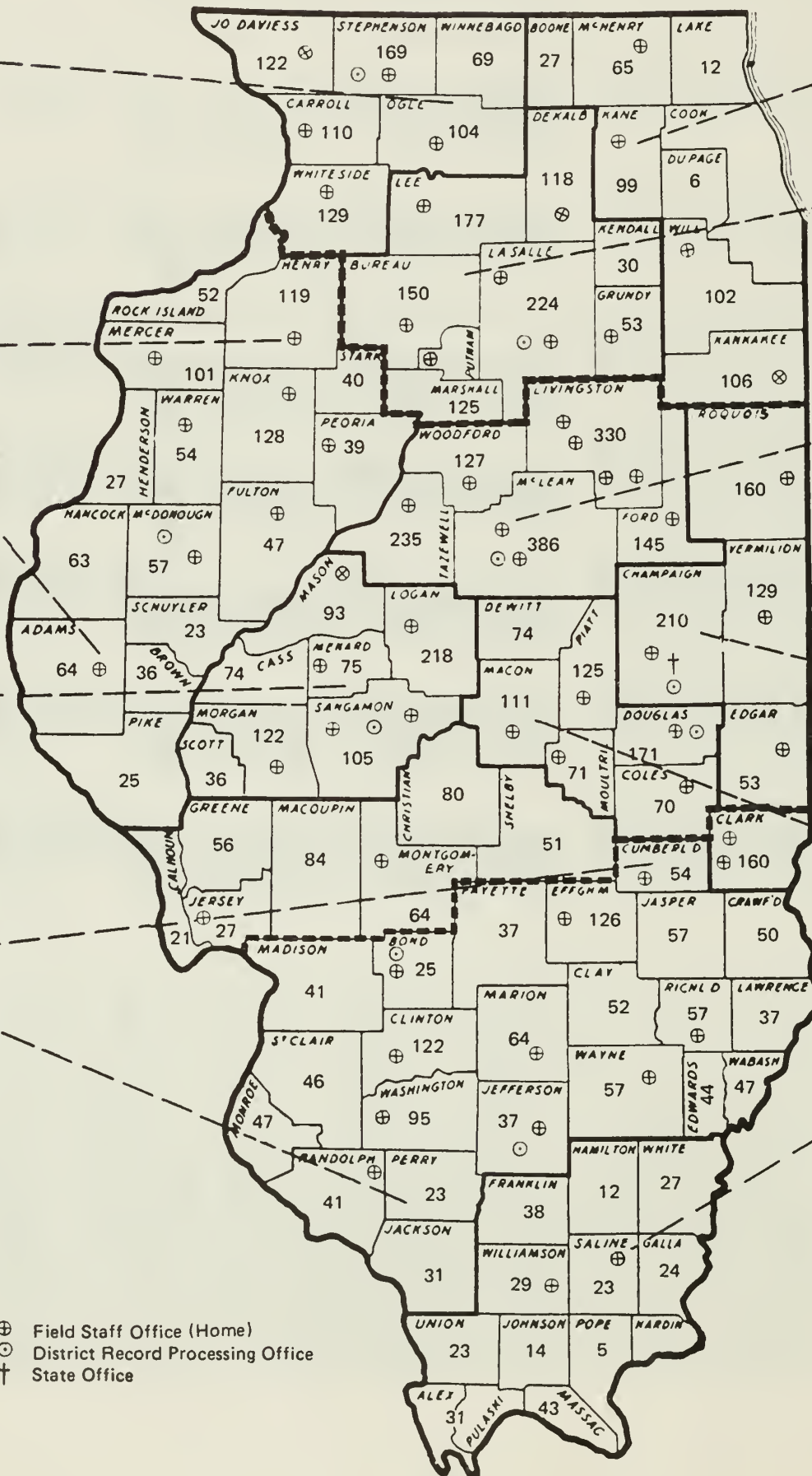
Rolland D. Gustafson  
Warren E. Berner  
Keith Naßer  
Mike E. England  
Robert W. Gates  
David O'Brien  
Walter S. Swearingen

### SHAWNEE

269

Fred B. Lemmon  
Robert D. Kiesecons

- ⊕ Field Staff Office (Home)
- ⊙ District Record Processing Office
- † State Office





Prepared by D. F. Wilken and R. P. Kesler of the Department of Agricultural Economics

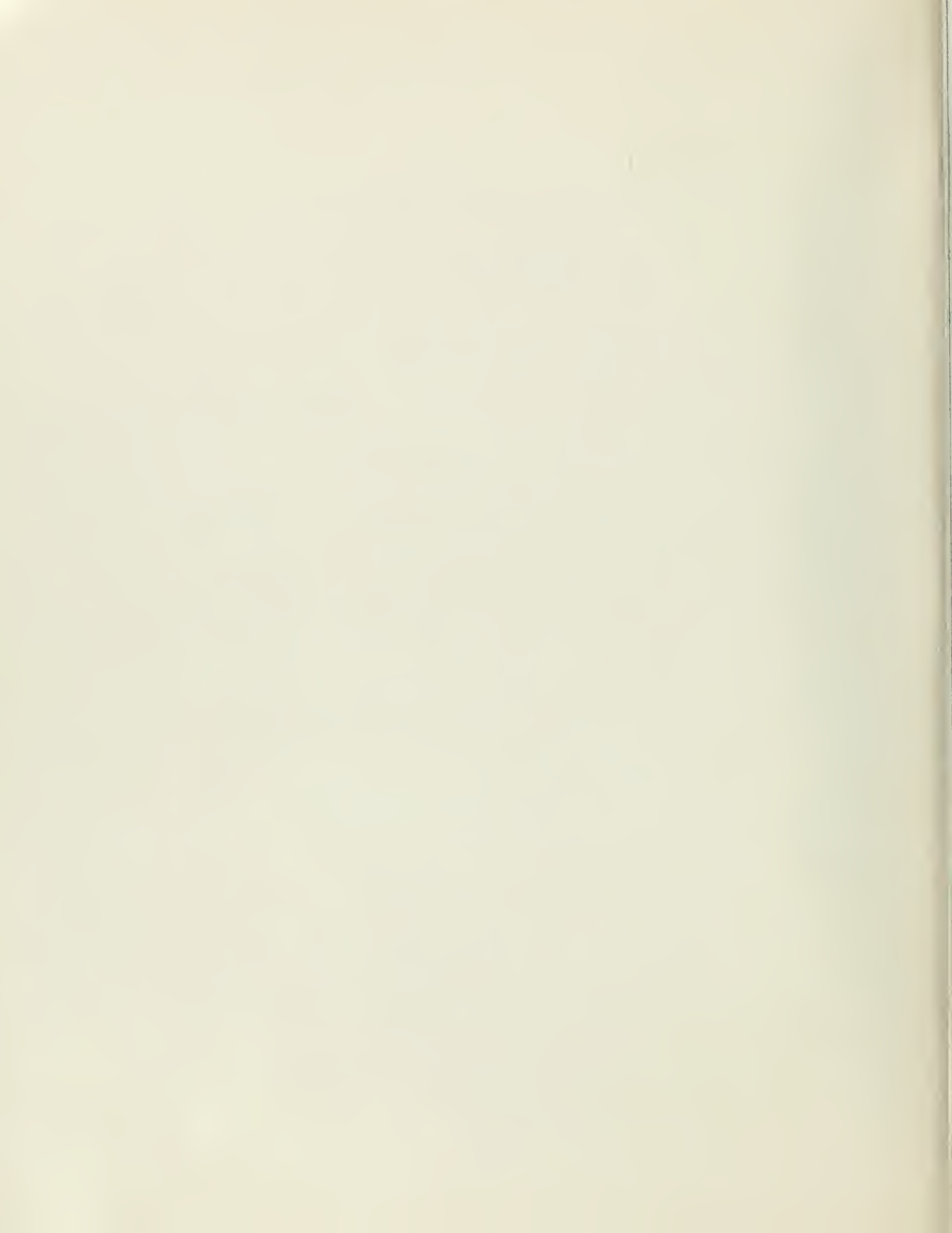
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